

THE ARCHITECTURAL FORUM

F. a.

* 4091.24
Vol. 30
Jan - Jan
1919

FOR QUARTER CENTURY THE BRICKBUILDER

THE FUTURE OF ARCHITECTURE

By C. Stanley Taylor

STEEL FRAMING FOR
LONG-SPAN CONSTRUCTION

By N. A. Richards, Assoc. Mem. A. S. C.

ARCHITECTS' ACCOUNTING SYSTEM
prepared for the
MICHIGAN SOCIETY OF ARCHITECTS

OFFICE BUILDING OF THE
WOMAN'S BENEFIT ASSOCIATION
OF THE MACCABEES

Richard E. Schmidt, Garden & Martin, Architects

TWO RECENT COUNTRY HOUSES

JANUARY 1919



PUBLISHED by ROGERS AND MANSON COMPANY
BOSTON AND NEW YORK AND DEVOTED TO THE
ART SCIENCE AND BUSINESS OF BUILDING

Established 1856

Henry Maurer & Son

Manufacturers of

HOLLOW TILE

Fireproofing Materials

OF EVERY DESCRIPTION

Flat and Segment Arches
Partitions, Furring, Etc.

Hollow Wall Blocks for Buildings

GENERAL OFFICE

420 East 23d Street - New York

Philadelphia Office, Penna Building

Works Maurer, New Jersey

PFOTENHAUER-NESBIT CO.

ST. JAMES BUILDING, BROADWAY, Cor. 26th ST.

NEW YORK

IMPERVIOUS FRONT BRICK

ROUGH TEXTURE
SMOOTH FACE

IN RED, BUFF, GRAY, MOTTLED,
WHITE, ETC.

Enameled Brick, Fire Brick, Roofing
Tiles, Paving Clinkers, Etc.

Genuine "KITTANING" Brick

Genuine "HARVARD" Brick

Genuine "GREENDALE" Rugs

Genuine "Fallston Iron Spot" Brick

Genuine "Fallston Weave Texture" Brick

The Winkle

Terra Cotta Company

St. Louis, Missouri

Manufacturers of

**Architertural
Terra Cotta**

In All Colors and Finishes

ST. LOUIS TERRA COTTA CO.

Manufacturers of

**Architertural
AND**

Ornamental

TERRA COTTA

IN ALL COLORS

THE ARCHITECTURAL FORUM

AN ILLUSTRATED ARCHITECTURAL MONTHLY DEVOTED TO THE ART, SCIENCE, AND BUSINESS OF BUILDING

NEW YORK

ROGERS AND MANSON COMPANY, Publishers

BOSTON

INDEX TO VOLUME THIRTY

JANUARY TO JUNE INCLUSIVE, 1919

Index to Plate Illustrations—According to Subject

Plates numbered 1-16, January; 17-32, February; 33-48, March; 49-64, April; 65-80, May; 81-96, June

PUBLIC BUILDINGS		RESIDENCE BUILDINGS—Continued	
Title, Location, and Architect	Plate No.	Title, Location, and Architect	Plate No.
BUSINESS AND COMMERCIAL			
Beneficial Savings Fund Society, Philadelphia, Pa., Horace Trumbauer.....	65-66	Kramer, A. Ludlow, Esq., Westbury, Long Island, N. Y., Peabody, Wilson & Brown.....	25-28
Office Building, Women's Benefit Association of the Maccabees, Port Huron, Mich., Richard E. Schmidt, Garden & Martin.....	4-8	Morison, Andrew, Esq., Montclair, N. J., William Edgar Moran.....	14-16
HOSPITALS		Norton, Huntington, Esq., Oyster Bay, Long Island, N. Y., Peabody, Wilson & Brown.....	29, 30
Brooklyn, Brooklyn, N. Y., Lord & Hewlett.....	91, 92	Phipps, John S., Esq., Old Westbury, Long Island, N. Y., Peabody, Wilson & Brown.....	31, 32
Cambridge Tuberculosis, Cambridge, Mass., Charles R. Greco.....	90	Ritter, Mrs. W. M., Manchester, Vt., Murphy & Dana.....	78-80
Columbia, Milwaukee, Wis., Richard E. Schmidt, Garden & Martin.....	94-96	Rives, Mrs. R. W., Santa Barbara, Cal., Reginald D. Johnson.....	12, 13
Norfolk County Tuberculosis, Braintree, Mass., Harold Field Kellogg.....	86-89	Stewart, Glenn, Esq., Locust Valley, Long Island, N. Y., Alfred Hopkins.....	43, 44
Salem, Salem, Mass., Haven & Hoyt.....	93	Waterbury, Conn., Murphy & Dana.....	67-71
Winchester Memorial, William Wirt, New Haven, Conn., Scopes & Feustmann.....	81-85	Whitewood, Lloyd Neck, Long Island, N. Y., Murphy & Dana.....	72-74
EDUCATIONAL BUILDINGS		Williams, Prof. F. W., New Haven, Conn., Murphy & Dana.....	75-77
SCHOOLS		FARM AND OUTBUILDINGS	
Union High, Palo Alto, Cal., Allison & Allison.....	1-3	Baldwin, J. C., Jr., Esq., Mt. Kisco, N. Y., Benjamin Wistar Morris.....	45
RELIGIOUS BUILDINGS		Bourne, Commodore Fred, Oakdale, Long Island, N. Y., Alfred Hopkins.....	33, 34
CONVENT		Burchard, Anson W., Esq., Locust Valley, Long Island, N. Y., Alfred Hopkins.....	39, 40
Carmelite, Santa Clara, Cal., Maginnis & Walsh.....	59-64	Johnson, L. & R. W., Messrs., Croyden, Pa., Duhring, Okie & Ziegler.....	46
CLUBHOUSES		Lawrence, Effingham, Esq., Cold Spring, N. Y., Alfred Hopkins.....	40, 41
Community Building, Heminway Park, Watertown, Conn., Electus D. Litchfield.....	9-11	Mollenhauer, Adolph, Esq., Bayshore, Long Island, N. Y., Alfred Hopkins.....	35, 36
RESIDENCE BUILDINGS		Schiff, Mortimer L., Esq., Oyster Bay, Long Island, N. Y., Alfred Hopkins.....	37, 38
COUNTRY AND SUBURBAN		Warburg, Felix M., Esq., White Plains, N. Y., Elisha Harris Janes.....	47, 48
Barnes, C. D. Esq., Manhasset, Long Island, N. Y., Peabody, Wilson & Brown.....	17-21	HOTELS	
Hadden, Mrs. J. E. S., Westbury, Long Island, N. Y., Peabody, Wilson & Brown.....	22-24	Pennsylvania, New York, N. Y., McKim, Mead & White.....	49-58

Index to Articles

Pages numbered 1-32, January; 33-62, February; 63-92, March; 93-122, April; 123-154, May; 155-192, June

	Page		Page
Accounting and Cost System for the Michigan Society of Architects, Proposed.....	13	Architect of the Future, The—Continued.	
American Institute of Architects, Fifty-second Annual Convention of the, Nashville, Tenn.....	123	Part III. The Client and His Problem.....	83
*Apartment Houses, Some Recent New York, from the work of J. E. R. Carpenter, Wilfred W. Beach.....	127	Part IV. An Advertising Policy for the Architect..	147
*Apartments, New Garden, Queens County, New York, N. Y., Andrew J. Thomas, Architect.....	187	*Arsenal Technical Schools, The New, Indianapolis, Ind., H. Van Buren Magonigle, Architect.....	55
Architect of the Future, The, C. Stanley Taylor:		Building Construction in 1919.....	22
Part I. Introduction.....	1	Buildings for the Commercial Farmer, Correspondence Relating to.....	141
Part II. Sales Organization in an Architect's Office	51	*California Schoolhouses, Recent Distinctive, William C. Hays. Part III, Concluding Paper.....	5
		*Carmelite Convent, The, Santa Clara, Cal., Maginnis & Walsh, Architects.....	115

7890

Index to Articles—Continued

	Page		Page
*Construction Problems, Rebuilding the Custom House, Boston, Mass., N. A. Richards, Associate Member A. S. C. E.	87	Hotel Pennsylvania, New York, N. Y.—Continued	
*Cottage Planned Orphanage, The, Harold C. Whitehouse, Part I.	33	The Design and Decoration of the Public Rooms, Gerald A. Holmes.	105
Part II. Details of Cottages and Accessories.	77	Mechanical Equipment of Hospitals, The, D. D. Kimball.	173
*Country Houses from the designs of Murphy & Dana, Architects.	143	*Models for Architectural Representation, Edwin S. Parker.	119
*Country Houses, A Group of Long Island, Peabody, Wilson & Brown, Architects.	47	*Modern Farm Buildings, Elisha Harris Janes, Part I. Group Planning and Design of Major Buildings.	63
*County Tuberculosis Hospital, The, William H. Scopes and Maurice M. Feustmann.	155	Part II. Planning of Minor Buildings.	109
Department of Architectural and Building Economics, C. Stanley Taylor, Associate Editor.	181	*Peck Memorial Hospital, The Carson C., Brooklyn, N. Y., Ludlow & Peabody, Architects.	177
*Farm Buildings, Some Recent, Alfred Hopkins, Architect.	75	Price Movements in the Building Industry, Notes on. .	46
Federal Aid to Home Building, F. R. Howe.	137	*Principles of Hospital Planning in View of Future Expansion, Richard E. Schmidt.	159
Government Housing Development, Notes on, Robert D. Kohn.	29	Promotion and Financing of Building Operations, Charles A. Whittemore.	41
*Grade School Building at Santurce, San Juan, Porto Rico, Adrian C. Finlayson, Architect.	11	*Rogers, Arthur Durand, An Appreciation of the Man and His Work, Ernest John Russell.	91
Hospital Design — The Relation of the Initial Design to Expense of Operation and Maintenance, Lindley Murray Franklin.	171	*Steel Framing for Long Span Construction, N. A. Richards.	23
*Hotel Pennsylvania, New York, N. Y., McKim, Mead & White, Architects.	95	*Street Decorations for the Parade of Overseas Troops, New York, N. Y., R. H. Shreve.	93
Mechanical and Kitchen Equipment, Frederick G. Colton.	97	*"Victory Way," New York Street Decorations for Victory Loan Drive, H. Van Buren Magonigle, Architect.	151
Steel Framing Features, Theodore C. Tuck.	104	*Winchester Memorial Hospital, The William Wirt, New Haven, Conn., Scopes & Feustmann, Architects.	162

Articles marked (*) are illustrated

Index to Frontispieces

Title	Month	Title	Month
View Across City Hall Park, New York, N. Y.	January	View of the Bush Terminal Sales Building, New York, N. Y., Helmle & Corbett, Architects.	May
View in Pershing Square, New York, N. Y.	February	View of Wall Street toward Trinity Church, New York, N. Y.	June
View of Lower Broadway, New York, N. Y.	March		
Victory Arch, Madison Square, New York, N. Y., Carrere & Hastings, Architects.	April		

Index to Plate and Page Illustrations—According to Author

Architect	Address	Plate	Page	Architect	Address	Plate	Page
Albro, Lewis Colt, New York, N. Y.			72	Lord & Hewlett, New York, N. Y.		91, 92	
Allison & Allison, Los Angeles, Cal.	1-3		4-10	Ludlow & Peabody, New York, N. Y.		177-180	
Atterbury, Grosvenor, New York, N. Y.			111	McKim, Mead & White, New York, N. Y.		49-58	95-104, 106-108
Carpenter, J. E. R., New York, N. Y.			127-136	N. Y.		59-64	115-118
Carrere & Hastings, New York, N. Y.			93	Maginnis & Walsh, Boston, Mass.			55-61, 150-152
Chalfin, Paul, New York, N. Y.			93, 94	Magonigle, H. Van Buren, New York, N. Y.			82
Davis, McGrath & Kiesling, New York, N. Y.			176	Major, Howard, New York, N. Y.			9, 10
Delano & Aldrich, New York, N. Y.			66, 68-70	Morgan, Julia, Oakland, Cal.			
Duhring, Okie & Ziegler, Philadelphia, Pa.	46		113	Moran, William Edgar, New York, N. Y.		14-16	
Eyre, Wilson & McIlvaine, Philadelphia, Pa.			71	Morris, Benjamin Wistar, New York, N. Y.		45	73-111
Finlayson, Adrian C., San Juan, Porto Rico.			11, 12	Murphy & Dana, New York, N. Y.		67-80	143-146
Foster, Gade & Graham, New York, N. Y.			74	Peabody & Stearns, Boston, Mass.			87-89
Greco, Charles R., Boston, Mass.		90		Peabody, Wilson & Brown, New York, N. Y.		17-32	45, 47-50
Greenleaf, John C., New York, N. Y.			112	Schmidt, Richard E., Garden & Martin, Chicago, Ill.		4-8, 94-96	31, 159-161
Haven & Hoyt, Boston, Mass.	93		172	Schneider, Charles S., Cleveland, Ohio			153
Holabird & Roche, Chicago, Ill.		39, 40, 78, 81	67, 74, 76	Scopes & Feustmann, New York, N. Y.		81-85	155-158, 162-164
Hopkins, Alfred, New York, N. Y.	33-44		64, 65, 109-111	Smith, Hinchman & Grylls, Detroit, Mich.			28
Janes, Elisha Harris, New York, N. Y.	47, 48			Stratton, William B., Detroit, Mich.			28
Johnson, Reginald D., Pasadena, Cal.	12, 13			Thomas, Andrew J., New York, N. Y.			187-191
Kellogg, Harold Field, Boston, Mass.	86-89			Trumbauer, Horace, Philadelphia, Pa.		65-66	
Litchfield, Electus D., New York, N. Y.	9-11						

Subject Index to Illustrations in Letter Press

Pages numbered 1-32, January; 33-62, February; 63-92, March; 93-122, April; 123-154, May; 155-192, June

ARCHITECTURAL DESIGN AND DECORATION		Title, Location, and Architect	Page
Title, Location, and Architect		COUNTRY AND SUBURBAN	
Page			
Arch of Jewels, New York, N. Y., Paul Chalfin.....	94	Cottage on Estate of John S. Phipps, Old Westbury, Long Island, N. Y., Peabody, Wilson & Brown.....	49
Court of Honor, Public Library, New York, N. Y., Paul Chalfin.....	94	Cottage of Brick at Summit, N. J., Howard Major....	82
"Victory Way," New York, N. Y., H. Van Buren Magonigle.....	150-152	Dining Room, House of Mrs. J. E. S. Hadden, Westbury, Long Island, N. Y., Peabody, Wilson & Brown.....	45
PUBLIC BUILDINGS		Entrance Hall and Stairway, House at Whitewood, Long Island, N. Y., Murphy & Dana.....	146
ADMINISTRATIVE AND GOVERNMENTAL		Hall, House of C. D. Barnes, Manhasset, Long Island, N. Y., Peabody, Wilson & Brown.....	50
Custom House, Boston, Mass., Peabody & Stearns.....	87-89	House of Mrs. Ritter, Manchester, Vt., Murphy & Dana.....	143-145
BUSINESS AND COMMERCIAL		FARM AND OUTBUILDINGS	
Arts and Crafts Society Building, Detroit, Mich., Smith, Hinchman & Grylls and William B. Stratton.....	28	Barn, Estate of J. C. Baldwin, Jr., Mt. Kisco, N. Y., Benjamin Wistar Morris.....	73
Office Building for Women's Benefit Association of the Maccabees, Richard E. Schmidt, Garden & Martin.....	31	Chicken Houses, Estate of Arthur Curtiss James, Newport, R. I., Grosvenor Atterbury.....	111
HOSPITALS		Chicken Houses, Estate of Jacob H. Schiff, Redbank, N. J., Elisha Harris Janes.....	110
Isolation Building, Hurley Hospital, Flint, Mich., Davis, McGrath & Kiessling.....	176	Chicken Houses, Estate of Felix Warburg, White Plains, N. Y., Elisha Harris Janes.....	109
Maternity Wing, Faulkner Hospital, Jamaica Plain, Mass., Haven & Hoyt.....	172	Drinking Trough, Com. Fred Bourne, Oakdale, Long Island, N. Y., Alfred Hopkins.....	76
Peck Memorial Hospital, The Carson C., Brooklyn, N. Y., Ludlow & Peabody.....	177-180	Farm Buildings, J. A. Burden, Esq., Syosset, Long Island, N. Y., Delano & Aldrich.....	70
Winchester Memorial Hospital, The William Wirt, New Haven, Conn., Scopes & Feustmann.....	162-164	Farmhouse and Barn, Estate of Robert S. Brewster, Esq., Mt. Kisco, N. Y., Delano & Aldrich.....	66
RELIGIOUS BUILDINGS		Farm Buildings at Glen Isle, Chester County, Pa., Wilson Eyre & Mellvaine.....	71
CHURCH		Farm Buildings, Estate of Major Clarence Fahnestock, Cold Spring, N. Y., Lewis Colt Albro.....	72
St. Andrew's Episcopal, Cleveland, Ohio, Charles S. Schneider.....	153	Farm Buildings, W. B. Osgood Field, Esq., Lenox, Mass., John C. Greenleaf.....	112
CONVENT		Farm Buildings, Otto Kahn, Esq., Cold Spring Harbor, N. Y., Delano & Aldrich.....	68, 69
Carmelite, Santa Clara, Cal., Maginnis & Walsh.....	115-118	Farm Buildings, Estate of Effingham Lawrence, Esq., Cold Spring, N. Y., Alfred Hopkins and Foster, Gade & Graham, Associated.....	74
EDUCATIONAL BUILDINGS		Farm Buildings, Jacob Schiff, Esq., Redbank, N. J., Elisha Harris Janes.....	64, 65
SCHOOLS		Piggery, Messrs. L. and R. W. Johnson, Croyden, Pa., Duhring, Okie & Ziegler.....	113
Arsenal Technical, Indianapolis, Ind., H. Van Buren Magonigle.....	55-61	HOTELS	
Grade, Santurce, San Juan, Porto Rico, Adrian C. Finlayson.....	11, 12	Pennsylvania, New York, N. Y., McKim, Mead & White.....	95-108
Grammar, Colton, Cal., Allison & Allison.....	4	GARDENS AND ACCESSORIES	
Primary Group, Lakeview School, Oakland, Cal., Julia Morgan.....	9, 10	GARDENS	
Union High, Palo Alto, Cal., Allison & Allison.....	5, 7, 10	A. Ludlow Kramer, Esq., Westbury, Long Island, N. Y., Peabody, Wilson & Brown.....	47, 48
Union High, Merced, Cal., Allison & Allison.....	8, 9	INSTITUTIONAL BUILDINGS	
RESIDENTIAL BUILDINGS		Kindergarten, Nursery and Half Orphanage Asylum, Chicago, Ill., Holabird & Roche.....	39, 40, 78, 81
APARTMENTS		PORTRAIT	
907 Fifth Avenue, New York, N. Y., J. E. R. Carpenter.....	127-133	Arthur Durand Rogers.....	90
550 Park Avenue, New York, N. Y., J. E. R. Carpenter.....	130		
630 Park Avenue, New York, N. Y., J. E. R. Carpenter.....	128-129		
640 Park Avenue, New York, N. Y., J. E. R. Carpenter.....	131		
960 Park Avenue, New York, N. Y., J. E. R. Carpenter.....	134, 135		
New Garden, Queens County, New York, N. Y., Andrew J. Thomas.....	187-191		



THE EDITORS FORUM



A YEAR of extremely interesting developments is begun for the architectural profession. The country is now turning to the building up of peace-time activities and much of the readjusting that will take place in the next few months will have an important bearing on the work of the profession. Constructive thought and action are needed to make this period of readjustment as brief as possible; well considered optimism and confidence in its successful outcome must characterize the work of those in positions of influence. Architects hold this position in the building world and, because of the basic nature of the building industry, they should expend their whole energy in bringing about its speedy rehabilitation. To count as a compelling force this action should be reinforced by a unity of purpose and a definite conception of the profession's rightful province. Unfortunately there are many opinions expressed today on the proper functions of architects that differ widely from one another, some of great merit, others of little or none. Underlying them all there is, however, a strong conviction that the influence of architects should be increased and that their position in relation to the commercial world should be strengthened. With this thought we wholly agree, and it is our aim to render as large a service as we are able in crystalizing present-day opinions, in the hope of seeing these results take place.

We have no interest in adverse criticism when it is of the mere fault-finding genre. Such expressions are destructive and serve no useful purpose, and often do infinite harm. Constructive aid is only given by a clear analysis of conditions as they exist, showing by careful reasoning where faults occur and offering new methods designed to overcome them. Such is the character of the series of papers, "The Architect of the Future," the first of which is published in this number. The others will appear in consecutive issues and consider in detail the following points of vital interest: The architect as a business man; sales organization in an architect's office; personal supervision of building construction, by the architect; architects and finance and architects and advertising.

MODERN practice of architecture has become an infinitely complex application of many sciences, in addition to the art of planning and designing buildings of beauty. Present indications are that architectural practice will be carried on through well co-ordinated office organizations that will embrace in themselves, the varying talent needed to consider properly all building problems. Design and construction, the latter involving engineering science, are so interdependent that to insure the best results they must be

carried on simultaneously and with a common understanding of the results being worked for. A better mutual appreciation of the work of the architect and engineer must be developed. This journal has in its editorial program always afforded a generous measure of space to construction problems, but during this year more space and greater emphasis will be placed upon architectural engineering than in any previous year. The newest developments in steel and concrete construction, fireproofing methods, economical use of materials and standardization plans leading to greater efficiency in the construction and use of buildings will be considered in an ample and authoritative manner. This work is begun in this issue in the article by N. A. Richards, treating of steel framing in long-span construction, illustrated from drawings especially made.

THE complexity of the architect's duties further calls for an efficient business organization for the transaction of financial dealings with clients and contractors. In recent issues we have described in considerable detail the systems that have been evolved in a number of representative offices, where a large volume of work is done each year. In this issue we are able to present a special report of a system of accounting, prepared by accounting specialists for the Michigan Society of Architects, that is intended to serve alike the small or large office with minor modifications. It is important to know on what kind of commission there is loss or profit, so that proper fees for different work may be determined, and in securing accurate data, there is no more valuable aid than systematic accounting.

THERE will be no less attention given in THE FORUM to architectural design than in the past; in fact, greater efforts will be made to present well written and illustrated articles on architectural precedent and the development of style. In announcing a wider range of subject matter, its editors do not forget that the profession of architecture is fundamentally concerned with the creation of beautiful buildings, and its particular province, the harmonizing of utilitarian demands with beauty and giving orderly arrangement to practical requirements. These marks of the profession are basic and unchanging, but today's developments in the business world and in the agencies through which the architect secures his results are necessitating the assumption of additional duties by the profession in order that its primary objects may be realized, and it is the broader field of architectural practice thereby created that THE ARCHITECTURAL FORUM aims to serve.

LINOTILE

"The Floor That's Built to Fit the Room"



This smart pattern in the sun parlor of Mr. John Clemson's home, Portland, Oregon, is composed of large red squares, small light green squares, white oblongs and dark green interlining strips.

Strengthening Professional Prestige

REPUTATION is the basis upon which the competence of architects is usually judged by prospective clients. Should not, therefore, a measure of prudence be exercised in the use of materials which aid in drawing favorable attention to work performed?

In the upbuilding of prestige, Linotile serves a definite purpose. It answers the need for a material out of which can be built floors of strikingly distinctive character.

With Linotile floors specified, the architect at once ensures for himself and his client wide latitude in the selection of appropriate designs; the eleven beautiful colors and various shapes and sizes in which it is made render it easy to create special floors suited to individual conditions, requirements and tastes.

A convincing piece of evidence of the merits of Linotile from an owner's viewpoint is found in this letter from Mr. Morris E. Berney, of Fort Worth, Texas:

"A great many people have asked me what kind of floor it is, and where I got it, as it seems to have attracted considerable attention on the part of those who had never seen it before, and if you get any inquiries, you may attribute some of them to people who have seen the floor in my house."

If you would like to have them, we shall be glad to send you a sample of Linotile and a copy of the handsomely illustrated book "Linotile Floors."

Armstrong Cork & Insulation Company,

132 TWENTY-FOURTH STREET,
PITTSBURGH, PA.

THE ARCHITECTURAL FORUM

VOLUME XXX

NUMBER 1

CONTENTS for JANUARY 1919

PLATE ILLUSTRATIONS

	Architect	Plate
UNION HIGH SCHOOL, PALO ALTO, CAL.	<i>Allison and Allison</i>	1-3
OFFICE BUILDING, WOMAN'S BENEFIT ASSOCIATION OF THE MACCABEES, PORT HURON, MICH.....	<i>Richard E. Schmidt, Garden & Martin</i>	4-8
COMMUNITY BUILDING, HEMENWAY PARK, WATERTOWN, CONN.....	<i>Electus D. Litchfield</i>	9-11
HOUSE, MRS. R. W. RIVES, SANTA BARBARA, CAL.	<i>Reginald D. Johnson</i>	12, 13
HOUSE, ANDREW MORISON, ESQ., MONTCLAIR, N. J.....	<i>William Edgar Moran</i>	14-16

LETTERPRESS

	Author	Page
VIEW ACROSS CITY HALL PARK, NEW YORK CITY	<i>Frontispiece</i>	
THE EDITORS' FORUM.....		17
THE FUTURE OF ARCHITECTURE... <i>C. Stanley Taylor</i>		1
RECENT DISTINCTIVE SCHOOLHOUSES IN CALIFORNIA.....	<i>William C. Hays</i>	5
Part III. Concluding Paper.		
GRADE SCHOOL BUILDING, SANTURCE, SAN JUAN, PORTO RICO.....	<i>Adrian C. Finlayson, Architect.</i>	11
PROPOSED GENERAL ACCOUNTING AND COST SYSTEM FOR THE MICHIGAN SOCIETY OF ARCHITECTS.....		13
BUILDING CONSTRUCTION IN 1919.....		22
STEEL FRAMING FOR LONG-SPAN CONSTRUCTION	<i>N. A. Richards, Assoc. Mem. A. S. C. E.</i>	23
NOTES ON THE GOVERNMENT HOUSING DEVELOPMENTS.....		29
OFFICE BUILDING, WOMAN'S BENEFIT ASSOCIATION OF THE MACCABEES, PORT HURON, MICH.....		31
EDITORIAL COMMENT.....		32

Published Monthly by

ROGERS AND MANSON COMPANY

85 Water Street, Boston, Mass.

Advertising Department, 42 West 39th Street, New York

Yearly Subscription, payable in advance, U. S. A., Insular Possessions and Cuba \$5.00
 Canada.....\$5.50 Foreign Countries in the Postal Union 6.00
 Single Copies.....50 cents All Copies Mailed Flat

Trade Supplied by American News Company and its Branches. Entered as
 Second Class Matter, March 12, 1892, at the Post Office at Boston, Mass.
 Copyright, 1919, by Rogers and Manson Company



VIEW ACROSS CITY HALL PARK, NEW YORK CITY

From photograph by John Wallace Gillies

This illustration is unique in recording three phases of American architecture, the City Hall, old Post Office, and the Woolworth Building.

THE ARCHITECTURAL FORUM

FOR QUARTER CENTURY THE BRICKBUILDER

VOLUME XXX

JANUARY 1919

NUMBER 1

The Architect of the Future

PART I

By C. STANLEY TAYLOR

Editor's Note.—This is the first of a series of articles dealing with practical subjects which are to prove important factors in the development and administration of the architect's office during the reconstruction period. Here the profession of architecture and American practice during past years is given the acid test of business logic. Contrary to the usual custom, however, the writer not only defines problems and conditions which are confronting the architect today, but offers logical solutions of such problems. Mr. Taylor is Project Engineer in the office of Mann & Mac Neille, Architects and Construction Engineers, of New York.

IN common with all great national and international disturbances, the world war has shaken the very foundations of the economic structure of the United States to which industrial, commercial and social activities have contributed gradual development during many past years. The pressure of war conditions has quickened these contributions. Even as each day has added pages to the military and geographical records of the world, so history has been made overnight in the fields of production and transportation. Precedents were swept aside by emergency. Unheard-of sums of money have passed in the greatest financial transactions of the ages. Building projects, which in ordinary times would receive weeks of study and take months for construction, have been planned in days and built in weeks. So in the office of the architect history has been made and a future of unlimited possibilities is promised to those of the profession who may wisely combine artistic temperament with practical business administration. In these few words we have an indication of past failure, a definition of true service, and a premonition of future success.

We now enter the period of reconstruction, a period of vital significance to the architect, in that he has at last been brought squarely face to face with important issues bearing upon the future of his profession. If he has done war work, a pace never before equalled has been set in his office. His is a more efficient force, no longer accustomed to the easy-going methods of production employed in past

years, and eager for continued activity. The office of the architect who has had no war work has been generally idle. Some have closed their doors to wait for better conditions. All are eager for new work. Many, of receptive minds, sense a change—a new development in professional activities connected with the building profession. On many tongues in architectural circles are the terms “improved service,” “better relations with the clients,” “antique ethics” and others of equal significance. Warnings, too, are being sounded by the ultra-conservative, among which one of the favorites (which serves to sum them up) is “Avoid Bolshevism in the profession.” Truly an interesting condition which proves that the architects have a reconstruction problem of their own and one of great import.

The opinion is unanimous that a tremendous volume of building construction is to be carried out in the United States during the next decade. The country was certainly underbuilt at the time our entrance into the war stopped all non-war construction. The need for buildings of various types expressed in many sections of the country constitutes logical proof that an active period for the architect may be expected. It is significant and important to note, however, the fact that the architect will not be able to get and hold business on the old basis. Increased national interest in thrift, economy and efficiency is to be directly reflected in building investment. The client will demand real service and efficiency of purpose in the design and construction of buildings of any type. Logically, the most successful offices will be those organized and prepared to render such service and to administer the expenditure of the client's funds in a businesslike and efficient manner.

During the war period there have been many complaints to the effect that the profession of architecture has not been credited or recognized by the Federal Government. The average architect complains that he has not had a fair share of war work. On the surface it might appear that there has been some ground for contention in this respect. If, however, we fairly apply the old law of cause and effect in analyzing this situation, we come to the

certain and unbiased determination that if there has been a lack of appreciation of the architects' ability it is none other than the fault of the architectural profession that such a condition exists.

Some months ago the writer was told the experience of an architect of good reputation who had been forced through lack of work to give up his office. He decided to visit Washington and apply for a Government position where his training and experience would make him a useful unit in war activity. As an architect, he did not get far and from a friendly source he received the following advice:

"Don't say you are an architect when you apply for work here. Say you are a construction expert or a structural engineer."

Briefly, he followed the advice and in two days was at work. The relation of this experience is purely incidental, but it has peculiar significance as an indication of the popular state of mind in regard to the architectural profession, of which there have been too many similar indications in the past few years. It is a sad fact that to the layman client architectural services constitute an evil (and an expense) to be endured, rather than a valuable service to make certain the efficient and economical carrying out of a business project involving building construction and design.

In the Orient there is in common circulation in several languages a proverb which, freely translated, has application to the present-day case of the architect. It is as follows: "He who meets failure has never met himself." Perhaps if we of the architectural profession will pause long enough to "meet ourselves" we shall be better able to solve correctly the problems which face us during the reconstruction period in America.

It is to be hoped, therefore, that all statements which may be made in these articles will be accepted as emanating from a sincere desire to be of constructive service in helping to place the profession upon a sound and prosperous basis through the reconstruction period and during the years to come — a desire to establish better understanding and mutual respect between the buyers and sellers of architectural services — to assist in maintaining the traditions and safeguarding the future of one of the finest and most valuable professions contributing so largely to the success of our social and economic development.

If we admit weakness in the present situation, if we find difficulty in convincing the prospective client of the value of professional services — if we come in contact with well founded criticism (and there are few of us who do not), we certainly must admit an element of failure in the past. Wherein, then, has the average architect and the profession failed?

Primarily, too much stress has been laid upon professionalism and too little attention given to the

practical business aspect of architecture as an applied science. We have at times heard statements to the effect that our schools are to blame for this condition. Certainly in the schools the artistic temperament, noted in all its phases for unbusinesslike qualities, is highly developed. But we must not overlook nor belittle the importance of this element. The creative designer will always play an important part in architectural work. Nowhere is there better evidence of the admonition against the serving of two masters by one man. Ages have proven that the artist cannot be the business man. Therefore the schools are not at fault in this respect. The fault lies in the organization of the architect's office!

To effect the desired combination of art, engineering and business we must bring together the artist, the engineer and the business man. In no other manner can the problem be successfully solved, the inter-relation of these activities is too close. If he is to have continued success the architect can no longer hide his weaknesses in dim cathedral light, nor can he disguise a short-sighted business policy behind a mask of "professional ethics!"

World business has recently received a most severe shaking-up and the predominant fact that has been brought to light is that great victories have been achieved by the application of sound business principles to every art of war and commerce.

Owing to the lack of a sound and clearly determined business policy, and in many cases directly due to the inability to render true service from the business viewpoint, it has been difficult for the architect to maintain cordial relations with his client. He has failed to appreciate the client's viewpoint and has often given him a building designed for special service which has not proven efficient. Misunderstandings and disagreements, easily avoidable, have arisen because of failure to keep the client properly advised of the progress of the work. The architect, as agent of the owner, has in many cases administered funds in an uneconomical manner, which sooner or later has come to the client's attention.

Reverting for a moment to the parlance of the salesman, an architectural "job" is peculiar in that if properly handled it must be "sold" no less than three times to the client: once in the first contact, when the architect is retained to make plans and sketches; again, when working drawings, quantities and final estimates are complete; and lastly, when the building is finished. Many clients have been dissatisfied because they have not been made to understand the buildings built for them. Details to which they take exception become acceptable on explanation. In many cases the architect is too prone to forget a building when it is finished unless called back by some complaint of the owner or tenant. A highly important factor toward success is to keep in touch with finished work. Many complaints and

failures are the result of poor management and maintenance, rather than the fault of design or construction, but the architect is invariably blamed unless he is on the ground to defend himself.

There are those who will say that the maintenance of a business organization in an architect's office, for the purpose of meeting these conditions, is unethical and consequently, unprofessional. We are interested in referring such critics to that present-day source of artistic inspiration, the country where we send our young architects for finished training at *L'Ecole des Beaux Arts*. In France it is quite usual for an architect who designs an apartment house to continue in charge of the building after it is completed, collecting rents, managing repairs and carrying on the business of the building as the owner's agent. In this manner the canny investor insures efficient study of his problem, resulting in a design which will bring the maximum of return on his investment.

We are not radically suggesting that the architect take over the activities and emoluments of the realty manager, but it is certain that by establishing and maintaining a closer relationship with the finished job the number of dissatisfied clients can be materially reduced and office reputation will gain apace.

Conditions seem to indicate that the progressive architectural office shall not be a one-man activity. As time passes, less dependency can be placed on getting work through personal friendship and influence. Better results are being demanded and reputation is to be built on performance. Large contracting firms are rapidly assuming the position of competitors for the complete design and construction of buildings. In such offices architectural departments are being formed and the legitimate field of the profession is invaded. The only protection against such activity is the creation of an organization which is capable of rendering a complete and economical service to the owner.

In view of these facts it can readily be seen that the architect's organization is to embrace several important activities. These will be touched upon but briefly in this article but in following articles their function, methods and personnel will be considered in detail.

First, it must be realized that architecture has passed the stage of merely supplying a demand or satisfying a need. It has reached the point where by constructive reasoning a demand may be created. This function of the office involves imagination, practical knowledge of business procedure and ability to convince a prospective client of the feasibility of a business proposition involving building construction. It requires powers of organization and the definite ability to create a project, finance it and sell the idea to a prospective client. Some few architects have for years successfully built up their business on this basis, but the average architect waits

until the preliminaries are complete and then steps in with many others to ask for the work.

Salesmanship of no mean ability is required to keep the office busy. Why should we scout the theory of a sales department in an architect's office, when this activity is continually being carried on. The only difference between the selling of real estate and the selling of architectural service is that in the first case the work of selling is well organized and efficient while in the architect's office it is carried on spasmodically and in a haphazard manner. The ethics of salesmanship and the ethics of architecture are compatible and may well be combined by the architect without loss of dignity or professional standing.

On the mooted question of architectural advertising, carried out in a dignified manner, we take a most positive stand. The architect who has real service to sell should advertise that fact. We need not dwell on recent action, which has been taken by the American Institute of Architects in removing restrictions on advertising by its members. We need but consider facts. In every case where the architect has had an opportunity to get publicity by having photographs and drawings published under his name he has hastened to accept. The architect insists almost invariably that when the manufacturer of face-brick or tile or steel illustrates an advertisement with one of his buildings that his name shall be shown as architect. This is called trade courtesy and is done as a matter of policy, but behind the act is the architect's demand for publicity — a legitimate demand. One of the world's greatest advertising experts has but recently stated that the reason the architect does not advertise is because he does not wish to bear the expense. If this be true, are we not here masking an unbusiness-like policy with a cloak of antedated ethics?

In a discussion of the subject of publicity it might be well to emphasize the fact that as an organized profession architects have not been active in informing the public as to the exact nature of their work and the value of their services. No other collective business activity, entrusted with the expenditure of vast sums of money in commercial activities, has been so backward in public education. Little has been done to warn the public against the inefficient or unscrupulous architect who in many cases has contributed effectually against his profession. In general, and particularly through current opinion, the mistakes of the architect receive more publicity than his many successful accomplishments. Collective advertising, not of the individual but of the profession, has possibilities which in other fields have proven strong weapons of defense.

Another fact which the architect often overlooks is that the client has no opportunity to realize how much work is really done for the money he spends.

He has no conception, for instance, of the time and thought required in making sketch plans. To the average mind a plan is a plan, nothing more. The average impression is that the plans and sketches of a building are worked out speedily and with little effort. Here again is an opportunity of establishing better relations with the client by more careful and detailed explanation, not only of the reasons for this particular design but of various other ideas tried and found wanting.

Much time and money are wasted by impractical office administration. In the first place, it should be realized that time spent with the client in fully determining his wishes and ideas will save much time over the drafting board. The average architect fails to get the client's viewpoint because he does not take sufficient time to do so, depending rather on costly experiment.

If the office is properly organized the major responsibilities will be placed on various individuals, thus insuring smooth operation and efficiency. The business of an architect's office naturally divides itself, presumably, into design, engineering and construction, as far as production is concerned. By routing each job and correctly placing the requirements, all data may be produced as required with the minimum of duplicated effort and inefficiency. An organization developed on a business basis has the double value of reducing overhead and impress-

ing the client who judges by business standards.

Every job which comes into the office should be analyzed with care. Because a client has decided upon a certain type of building or a certain location does not constitute final proof that his decision is best. Before design is started a careful investigation of the project should be made. It should be considered from the real estate viewpoint. The best service an architect can render is sometimes advice which would seem foreign to his profession and may be from the financial, realty or manufacturing viewpoint.

Occasionally the profession of architecture is likened to that of medicine, in a discussion of ethics. A patient does not often come to a doctor with the statement that he has a certain disease or weakness and ask for its treatment. But this is what the average architect has been satisfied to have his client do.

If architects will realize the value of a more businesslike conduct of their practice the time will soon come when they will be consulted in an advisory capacity on building investments, improvements and trade extensions. They will be accorded a more definite place in the commercial scheme and will be looked upon less as dreamers and more as experts. At that time, as the patient comes to the doctor with *symptoms*, so the client will come to the architect with *problems* rather than conclusions!



Grammar School at Colton, California

Allison and Allison, Architects



General View of Palo Alto School Group from the West

Recent Distinctive California Schoolhouses

PART III. CONCLUDING PAPER

By WILLIAM C. HAYS

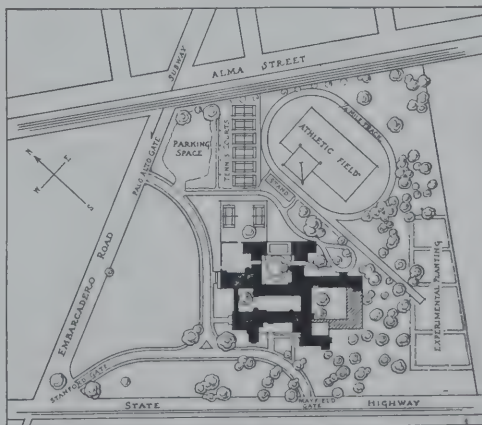
THE time was the night of an important state election during the brightest — and blackest — domination of Senator Mathew Stanley Quay. The place was the Union League Club in Philadelphia. The speaker was one of the substantial "leading" citizens (Heaven help the others!) of that pattest of all stand-pat states. Speaking of the election by the Republican party which had just been assured of a Quay candidate of rather disreputable record, this leading citizen was heard to say, "I would vote for Judas Iscariot if he was the regular Republican candidate." We have here a fine example of the Simon-pure stand-patter Republican of what one hopes may be a bygone regime, in view of the epigrammatic definition that "a Stand-patter is still and cannot get in motion while a Progressive is in motion and cannot stop." But while it is true that any one holding to any such fixed course as this is on a wrong track, it is not to be supposed that an unswerving "middle of the road" is in all respects necessarily a better course. In fact, it is probably better to take the risk of occasional blunders, and use some individual judgment but let us at least see that what we do is definite. For the truth is that the man or woman who is not mentally pliable under rational convictions is mentally either dying or dead. No one who has operated a player piano but will recognize the importance of the wandering line printed on

the roll and which, when followed by an indicating needle, causes modulation in the expression. In some such sense is the course followed by thinking men and women varied. If we may change the figure — Life is a road which passes through a rolling country, and one to drive there safely must be alert with brakes on or throttle open, each in turn. It is largely because we are living in days when materialism is a constant menace against which all vigilance is needed that so much emphasis has been placed in these papers on the importance of broadening our views of school architecture.

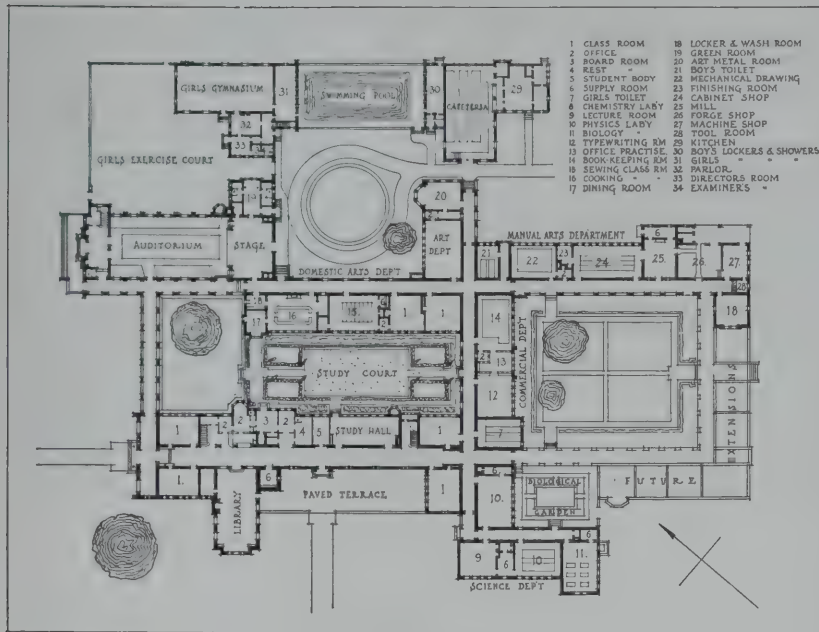
In our consideration of the schoolhouse problem we are prone to narrow down the point of view so as to include only the teachers and pupils. We are likely to assume that all phases of the problem have been met if the building, when built, answers well the various requirements of supervision and teaching, from the point of view of the administration;

and the usual problem of recreational and study facilities as well as sanitation and hygiene, from the point of view of the pupils.

Our study of the problem, however, is at this stage still far from complete, since there is at least one other highly important aspect of which notice must be taken. For the schoolhouse is not only a utilitarian scholastic implement; most important and largest of all utilities though it is — but it is, whether



Plot Plan of Union High School
at Palo Alto



First Floor Plan. Union High School, Palo Alto, California
Allison and Allison, Architects

architecturally good or bad, a conspicuous feature in village, town or city to be noted by every passerby and to make its imperceptible impress on the taste of the community. The architectural character of the school building or buildings advertises to the passing world far more than is usually realized, an idea of the inner being of the community life. The schoolhouse may be an open proclamation of cheap pretentiousness — on the one hand, or, on the other, of a spirit of penuriousness and a lack of appreciation of the importance of the coming generation; still again, it may express a spirit of vain wastefulness and extravagance in uselessly spending money for superfluous gewgaws or unnecessarily expensive, and consequently inappropriate materials. If there is any one fact which has been frequently demonstrated to the initiated, but unnoticed by the passing public, it is that simple, inexpensive and indigenous materials may be wrought by the alchemy of the artist into masterpieces, while side by side with such buildings there

are no “fine” materials anyway; and, meanwhile, that there may be fine use of *common materials* is not to be questioned or denied.

In still another sense, too, the use of very expensive materials is unwise, even if there were money available to warrant the expense; because it may be safely assumed that extensions will be needed in future, and such extensions, when made, always involve partial destruction or encasing of existing walls.

A school, like a college or university, is not a lifeless thing but is rather a living and growing organism which may at any time, through various causes, require greatly increased quarters. An addition to the building is then unavoidable, unless there is space available for a separate building and even then only when such separation from the main building will not handicap the work.

But not only is the choice of inexpensive materials wise — from the point of view of securing the largest soundly constructed building possible, within a limited appropriation—but it should be



View in Small Court Adjoining Auditorium
Union High School, Palo Alto, California



View from the Southeast, Union High School, Palo Alto, California
Allison and Allison, Architects

borne in mind that even our best buildings will some day, no one knows how soon, be superannuated. We are not more sincere in attacking our school problems than were the generations before us, who presumably in their time built to the best of their knowledge and after making all proper inquiry and investigation. They were no ignoramuses, nor were they either unintelligent or negligent in the performance of their duties, and yet we know that the school buildings of thirty or forty years ago are now virtually useless in view of our present conceptions of the problem. If, therefore, they are destined for the scrap yard, there is no reason why we should assume that *our* buildings will last forever. Ours too will join the great majority of the *passé*.

Reference to the illustrations which have been used with this series of articles on California schoolhouses will doubtless show that although little, if any, special mention has been made of the influence of materials on architectural expression—almost without exception the buildings themselves have illustrated this principle of the effective use of modest materials.

Of the primary and grammar schools it was shown that the irregular, unconventional plan is a type often used, and this type, while less frequently found in the institutions of high and normal grades, is not unknown. An

example of the possibilities latent in irregularity of plan is seen in Messrs. Allison & Allison's design for the Union High School at Palo Alto. The site, containing as it does thirty acres, is unusually large and is virtually flat land. It is dotted with broad-spreading live-oak trees which it was the wish of all concerned to save if possible. The location is at the acute intersection of two streets, the apex of the angle pointing toward Leland Stanford, Jr., University, which is near by. One of the streets leads off toward the

residence district of Palo Alto, while the State Highway, on the other side, will be the approach for a considerable number from the town of Mayfield. Therefore it was natural to develop a scheme providing access through three gateways. The first concern of the architects was to make use of the clear spaces for certain open tracts, necessarily large, such as the football and athletic field, tennis courts and experimental gardens. There then remained the design and placing of the buildings themselves, and, with clear vision, it was urged



Loggia at Entrance to Administrative Quarters
Union High School, Palo Alto, California

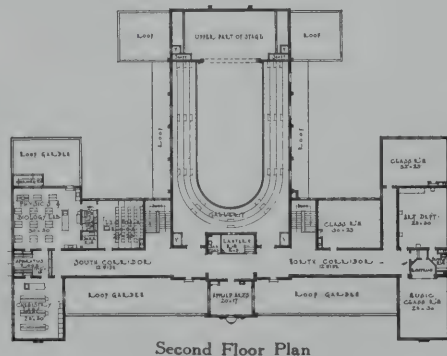


Detail of Administration Building
Union High School, Merced, California

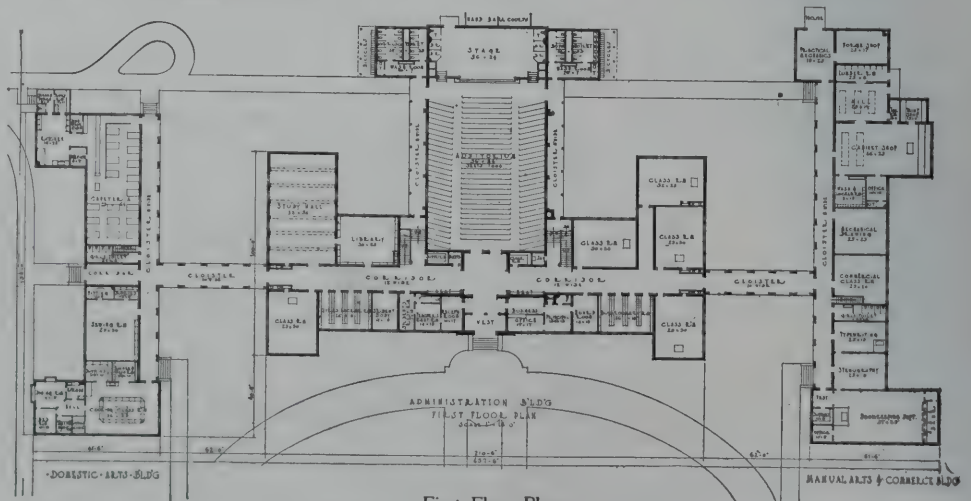
that the problem was such that an irregular, rambling plan was the only type that could meet the existing conditions. Freed from the limitations which a formal or symmetrical composition imposes, the type selected was such as might be fitted in between some of the finer trees, these trees to be made use of, as well for practical convenience as for pictorial effect. Some of the trees had to be sacrificed, but they were few, and unimportant. From this point onward the problem in designing the building group must have been a fascinating one, leading, as it did, to the development of all sorts of charming and unpremeditated features. The *parti* also has the further virtue that it allows latitude in the groupings of departments, to best advantage, both within and between themselves.

Study of the plan reveals the skill of the designer in solving these problems; the result reflects, too, a spirit of co-operation between the architects and the school authorities. The plan resolves itself into clearly marked elements. First is a general administrative group, which forms the fore-part of the composition. This contains—besides the administrative offices—the library, some general classrooms and a large study hall. An unusual feature is the outlook from the study hall toward a quiet, enclosed study court which is reached by a direct exit from the room, and by an interesting scheme of planting the court is indicated. The auditorium, a separate unit, is reached from this first group of rooms through an open, arcaded portico, but also has its direct entrance from the Palo Alto driveway. In addition to the classrooms for “cultural” studies, already mentioned, there are separate portions of the plan allotted to special departments. These include domestic arts, fine arts, manual arts, the commercial and science departments. Here again the advantage of informal plan composition is shown, in that no compulsory arrangement is imposed upon the designer, but that it is possible to relate the sequences of rooms, just as practical conditions may indicate. This is seen in the well lighted scheme for the manual arts shops, as well as the “L” form of the science department,

the latter having its outdoor element, namely the biological garden, occupying the internal angle of the “L.” Farther away from the classroom departments is the cafeteria, also the gymnasium, with its open air swimming pool. If the composition is open to adverse criticism, it is that the plan, being distributed over so great an area, involves a deal of travel in connection with the administration.



Second Floor Plan



First Floor Plan
Union High School, Merced, California
Allison and Allison, Architects

Although the present articles are dealing with school buildings specially for high and normal grades, the recent completion of an interesting experiment justifies mentioning and illustrating here the Primary Group of the Lakeview School, Oakland, California, from plans by Julia Morgan. This group is across the street from, and an accessory of, the much larger and previously built Lakeview Grammar School. It occupies an irregular site, which is at some elevation above the curving front street. Owing to the fact that the Primary School had to be built from reserve funds, which became available only in small installments, some scheme of unit-type construction was inevitable. The problem was complicated, also, by the fact that there were some temporary "shacks" in use on the site

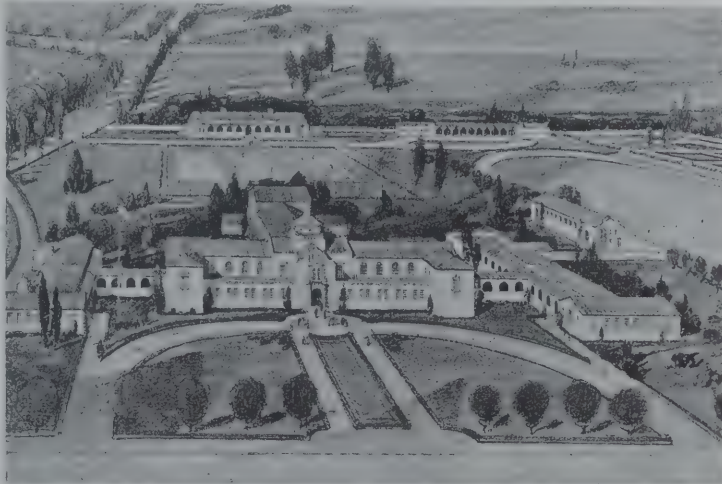
during the construction of the new building. The designer, however, seeing in this condition the chance to make a virtue out of necessity, laid out a group of three relatively small and entirely separate structures, each of four classroom capacity, and with the administrative rooms forming part of the central unit (which, of course, was the first one built). This *parti* avoided the box-like bulk of the usual schoolhouse, while it brought the several units down to some degree of harmony with the scale of the adjoining buildings, for it is in the heart of a

thickly built-up neighborhood of two-story residences; it also did away with tearing out and waste, in adding the successive units, while it minimized the interruptions of school routine while new construction was under way. Probably, also, it reduced the fire and panic menace that is ever present in the bulkier type of school building. Granting this "several buildings" solution of the problem, and planning them in an

informal, though balanced scheme, each unit might be treated individually, provided that the idea of harmony is kept in mind; and here there is no exact duplication or reversal, but each classroom has been so placed as to utilize the best exposures. The inter-relation of buildings to meet the working needs has been pretty successfully solved by connecting porches and

decks between the units, at both first and second floor levels.

The striking feature of this composition, however, is the long and broad play shelter, curving concentrically with the main street, and enfolding all three of the buildings. This shelter lies to the south and east of the buildings, is always warm and sunny on clear days, and no matter what the direction of the wind, on rainy days some part of it is protected; furthermore, it is so placed as to command an interesting view eastward towards the finely outlined hills of



Bird's-eye Perspective of Union High School
Merced, California



Primary Group, Lakeview School, Oakland, California
Julia Morgan, Architect

Piedmont. On behalf of the pupils, then, this portico meets at once material and spiritual needs; and to the passerby it serves the function of partly screening and at the same time bringing into unity of composition the three elements, alike yet individual, which mass up behind. It is probable that in certain respects this group of buildings would not measure up to all established standards of utilitarian school design; it would certainly be expensive to heat, for example, and the effort to separate the toilet pavilions makes them very remote, without their being especially private. But an unusual problem has been well solved, and this little group houses pupils who are comfortable in body and possibly, in such environment, contented in spirit. With the rapid growth of the newly planted gardens, there will be steady improvement as the buildings and their setting mellow together.

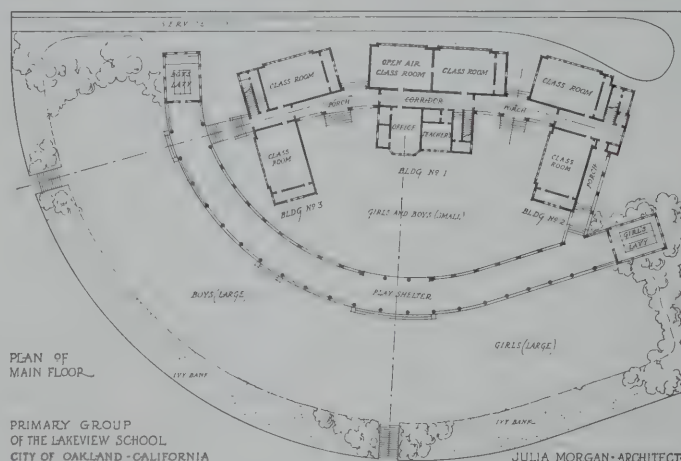
What, in substance, is deduced from all this discussion that is everywhere abroad concerning the school building? That it is an always living problem for educator and architect, for parent and community, each according to respective obligations.

Any community, then, if it is wisely studying in advance its school building problems (any "wise" community will do so), will place proper emphasis on its "declaration of intention." The authorities

will see to it that their schools are placed on well located, ample sites—sites which have advantageous exposures as to contours, sun, prevailing winds, outlook, and—a consideration too seldom remembered—street or neighborhood noises. That these sites should be in proper relation to the present and prospective school population, of course, goes without saying. There will be a decisive policy that under no circumstances shall construction be skimped (which, however, does not argue for excess in the opposite direction), that the materials used shall be modest, and that responsibility shall be placed in the hands of architects known to be alive to and in sympathy with all aspects of the school



Play Shelter



PLAN OF MAIN FLOOR

PRIMARY GROUP OF THE LAKEVIEW SCHOOL CITY OF OAKLAND - CALIFORNIA

JULIA MORGAN - ARCHITECT

problem; known, also, to be thoroughly well trained, capable, enthusiastic and ready to spare no pains to get the best possible result in the solution of each several problem and in the use of the simple materials which alone are rightly available.

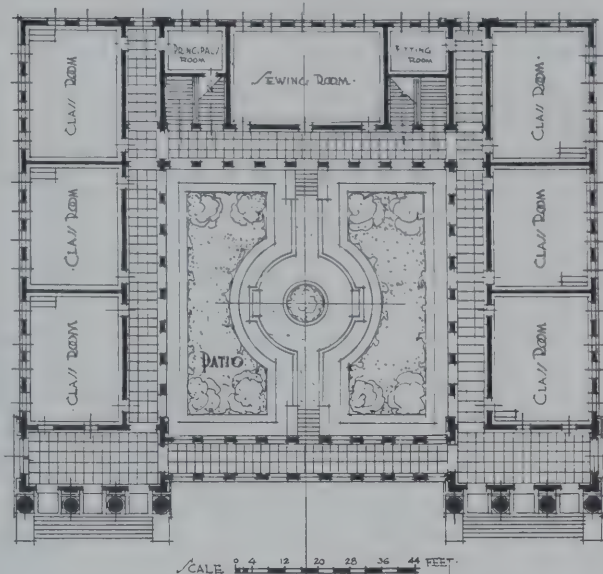


View of Palo Alto School from the East, Showing the Rear of Auditorium Wing

Grade School Building at Santurce, San Juan, Porto Rico

ADRIAN C. FINLAYSON, ARCHITECT

A DEVELOPMENT of the school plan similar to that adopted in California and described in the preceding article is illustrated by this school in Porto Rico. The tropical climate there gives rise to conditions not encountered in school buildings in the greater part of the United States proper. The even, semi-warm temperatures make heating or forced ventilation systems unnecessary. The chief consideration is that all rooms shall have the maximum number of openings, both in exterior and interior walls, in order that natural ventilation may have full play. In the present instance this is accomplished by a plan, no part of which is more than one room deep. It shows a simple U-shaped scheme, the rooms grouped about a central court and connected with one another by open-air corridors, the front end being closed with a continuation of the corridors, thereby tying the two deep wings together and providing seclusion and quiet for the court, which has received a garden treat-



Main Floor Plan

ment. The second floor plan is similar to that shown, the open-air corridors being repeated. Due to the sloping character of the land additional space is provided at the rear of the basement, giving a total accommodation of seventeen rooms.

The materials used in Porto Rico are more or less the same as those used in the United States, and while some are obtainable there, the most of them are imported, and in nearly all cases from the United States. Certain materials such as marble, and the

various building stones, as well as the more expensive woods are not used, due to the prohibitive cost caused by transportation charges, the island being approximately fourteen hundred miles from New York and farther from New Orleans.

The building illustrated is of red brick manufactured in Porto Rico. Foundation walls, all floors, cornices, bands, key blocks and ornaments are of reinforced concrete. The brick is laid in Dutch cross



General View of Principal Facade



View of Interior Court

band with flush white joints five-eighths inch wide. All the exterior concrete work is made with white cement. The roof is of rough slate, graduated in thickness and ranging in color from deep purple through the various shades to light green. The red and white building, surmounted by the green roof and white cupola, contrasts agreeably with the green grass surrounding the building, the tall palms and mango trees, and the brilliant blue sky of the tropics.

The classroom walls are tinted a light pearl gray to harmonize with the natural slate blackboards and white trim. The corridor floors and stairways are covered with red quarry tile laid with white joints. The main toilet rooms are located in the basement and finished in white vitreous tile and equipped with modern vitreous china fixtures.

The completed building cost \$100,000, and is a part of a general scheme for providing adequate school facilities for the city. This policy was inaugurated three years ago and to date four large buildings have been constructed totaling in cost \$420,000. Other buildings are contemplated, including a large

high school, now under way, which will cost about \$400,000. These buildings together with all other public structures are designed and constructed by the Architect of the Division of Public Buildings, Department of the Interior of Porto Rico. They comprise all types of government and municipal buildings, the greater part of which are schools and university buildings. They vary in cost from \$1000 to \$500,000, and in the past three years have totaled over \$3,000,000.



View of Rear



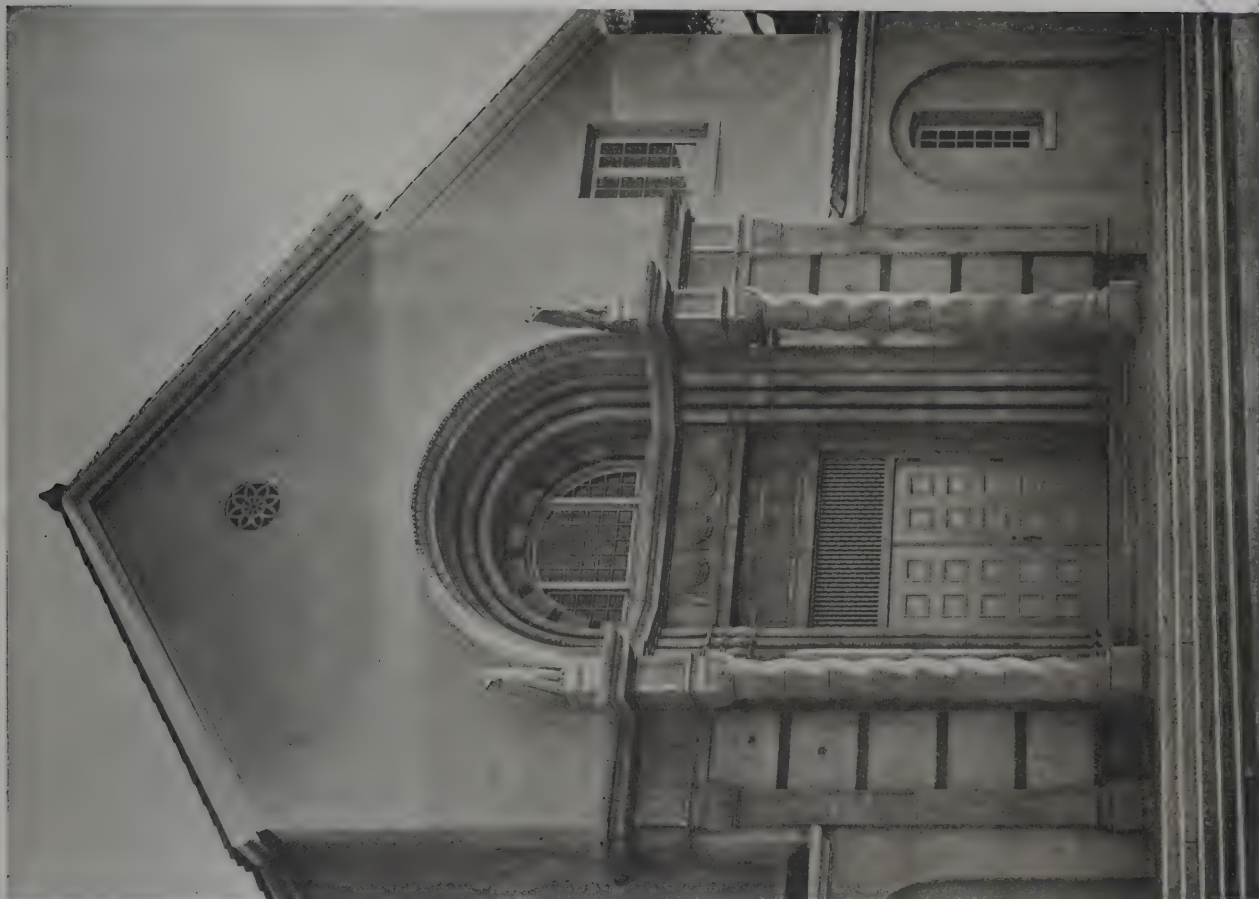
LIBRARY WING ON SOUTHWEST FRONT
UNION HIGH SCHOOL, PALO ALTO, CALIFORNIA
ALLISON AND ALLISON, ARCHITECTS



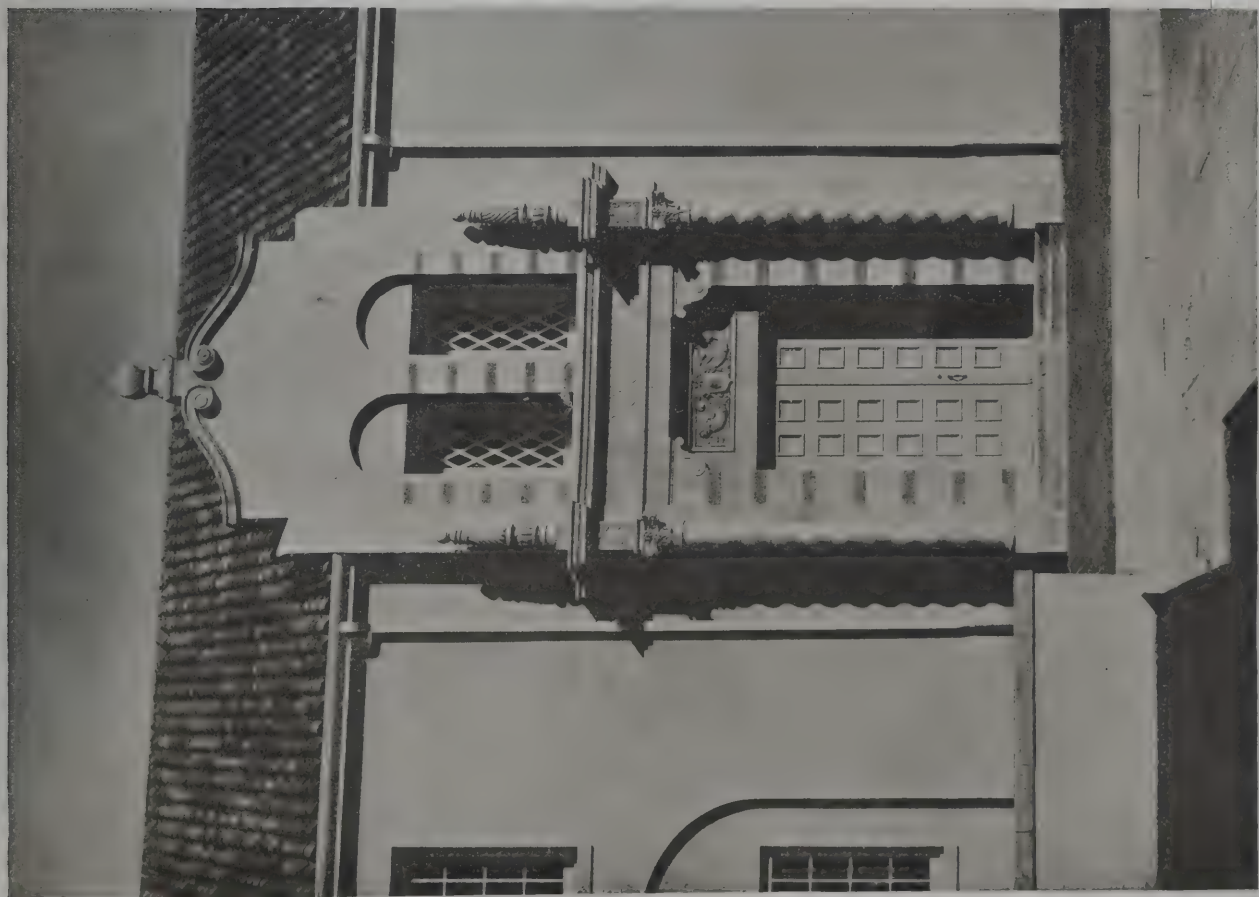
AUDITORIUM FRONT FROM NORTHWEST



GENERAL VIEW OF SOUTHWEST FRONT
UNION HIGH SCHOOL, PALO ALTO, CALIFORNIA
ALLISON AND ALLISON, ARCHITECTS



DETAIL OF ENTRANCE TO AUDITORIUM
UNION HIGH SCHOOL, PALO ALTO, CALIFORNIA
ALLISON AND ALLISON, ARCHITECTS



DETAIL OF ENTRANCE ON SOUTHWEST FRONT



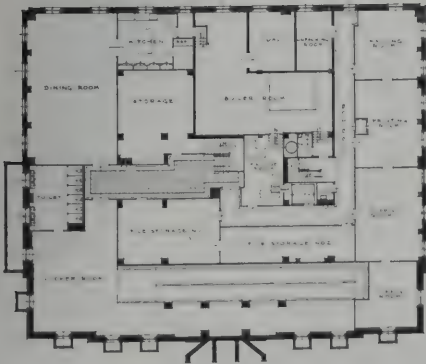
GENERAL VIEW

OFFICE BUILDING FOR WOMAN'S BENEFIT ASSOCIATION OF THE MACCABEES, PORT HURON, MICH.

RICHARD E. SCHMIDT, GARDEN & MARTIN, ARCHITECTS



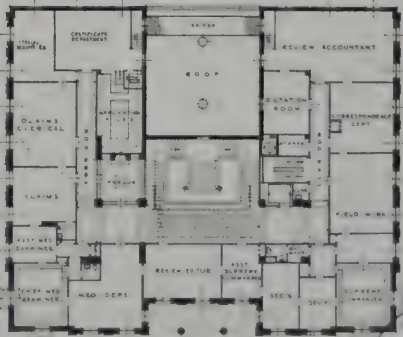
VIEW OF MAIN FRONT



BASEMENT PLAN



FIRST FLOOR PLAN



SECOND FLOOR PLAN

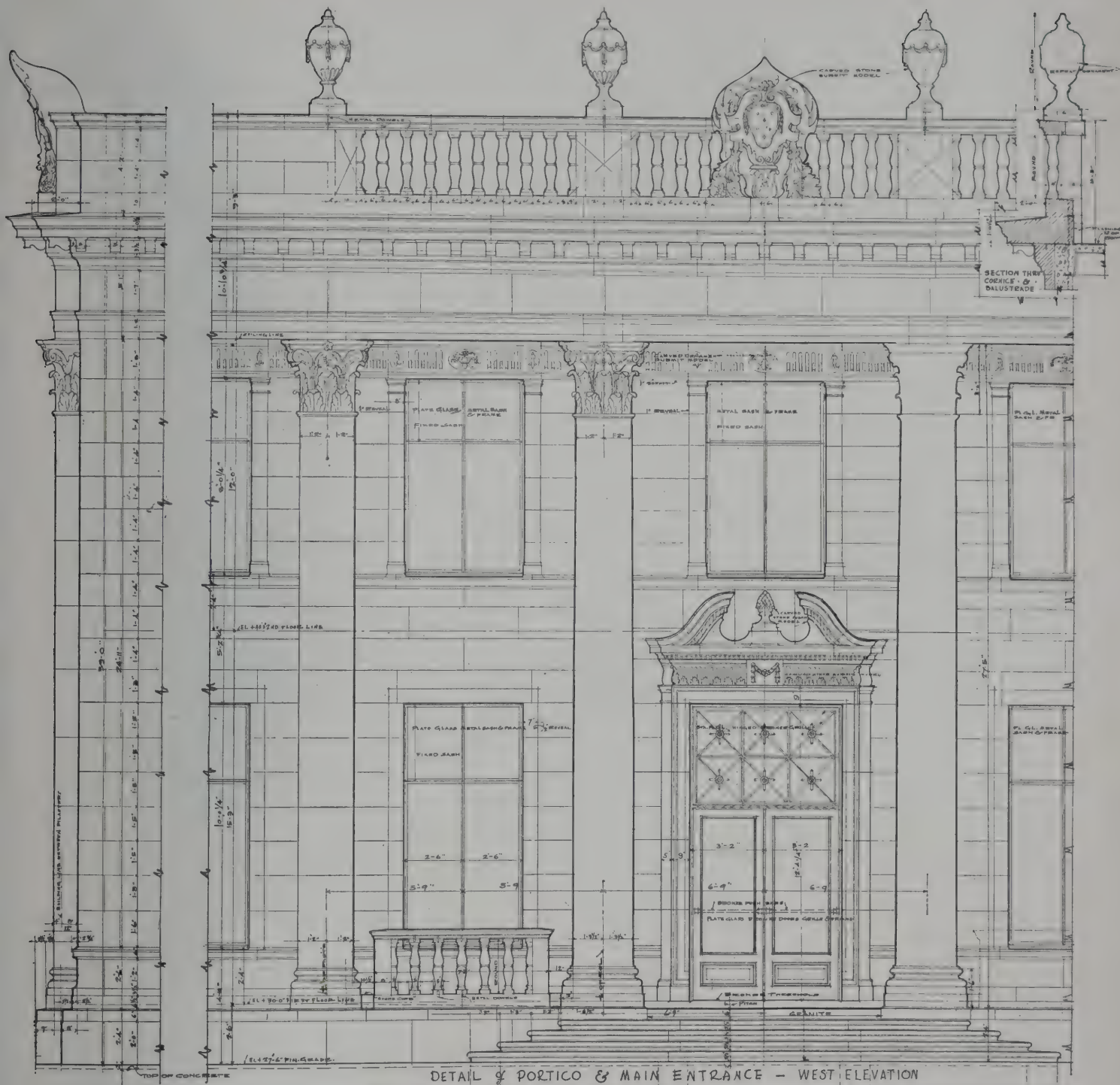
OFFICE BUILDING FOR WOMAN'S BENEFIT ASSOCIATION OF THE MACCABEES, PORT HURON, MICH.
RICHARD E. SCHMIDT, GARDEN & MARTIN, ARCHITECTS



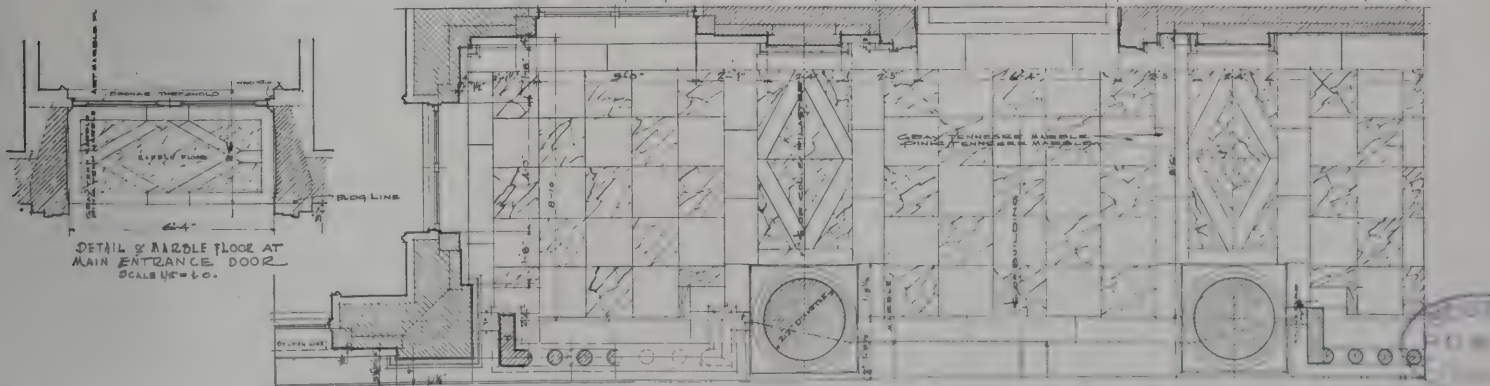
DETAIL OF ENTRANCE PORTICO

OFFICE BUILDING FOR WOMAN'S BENEFIT ASSOCIATION OF THE MACCABEES, PORT HURON, MICH.

RICHARD E. SCHMIDT, GARDEN & MARTIN, ARCHITECTS



DETAIL OF PORTICO & MAIN ENTRANCE - WEST ELEVATION

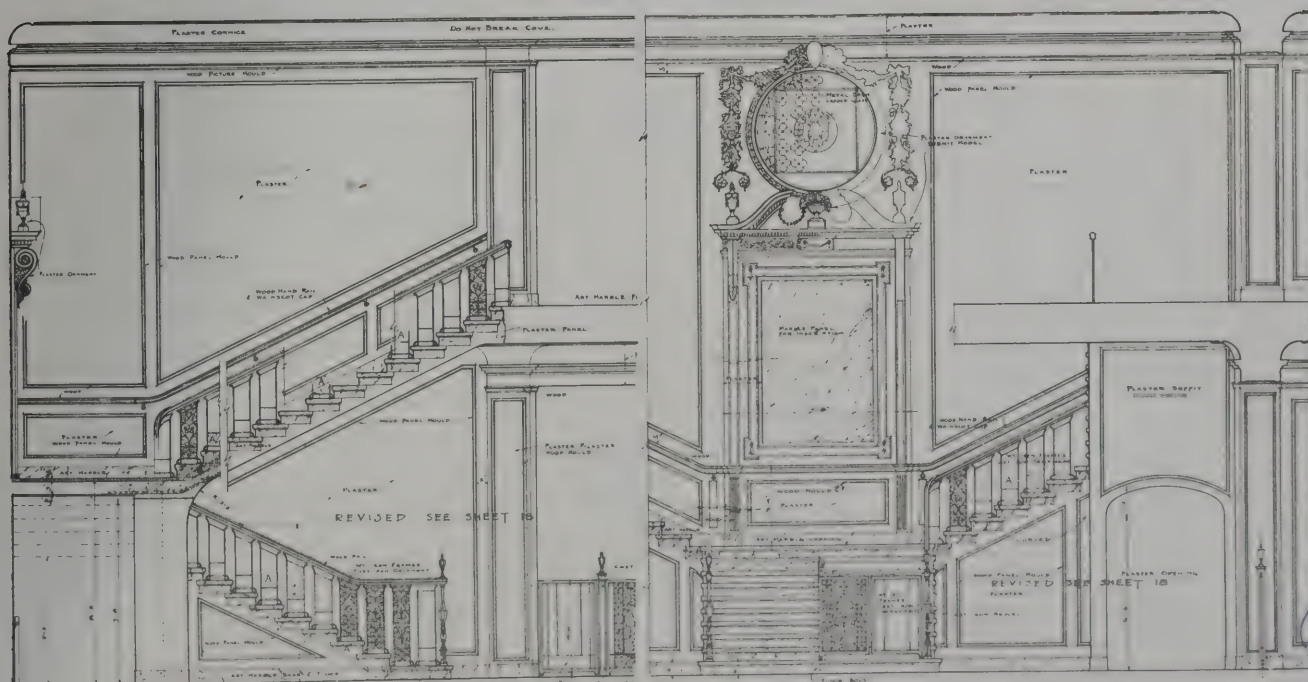


DETAIL OF MIDDLE FLOOR AT MAIN ENTRANCE DOOR
SCALE 1/4" = 1'-0"

DETAIL OF ENTRANCE PORTICO, SCALE OF ONE-SIXTH INCH TO ONE FOOT
OFFICE BUILDING FOR WOMAN'S BENEFIT ASSOCIATION OF THE MACCABEES, PORT HURON, MICH.
RICHARD E. SCHMIDT, GARDEN & MARTIN, ARCHITECTS



VIEW OF MAIN STAIR HALL



DETAIL OF STAIR HALL, SCALE OF ONE-EIGHTH INCH TO ONE FOOT

OFFICE BUILDING FOR WOMAN'S BENEFIT ASSOCIATION OF THE MACCABEES, PORT HURON, MICH.

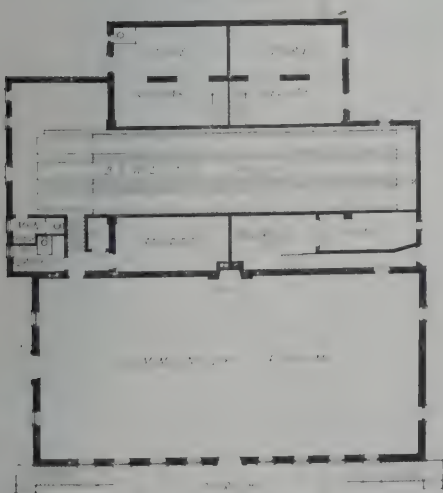
RICHARD E. SCHMIDT, GARDEN & MARTIN, ARCHITECTS



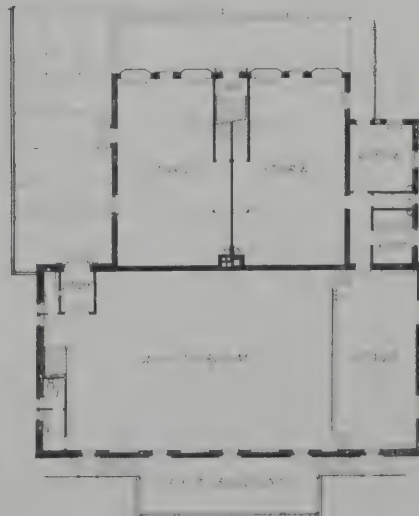
DETAIL OF STREET FRONT
COMMUNITY BUILDING AT HEMINWAY PARK, WATERTOWN, CONN.
ELECTUS D. LITCHFIELD, ARCHITECT, GUION THOMPSON, CONSULTING ENGINEER



GENERAL VIEW



BASEMENT PLAN



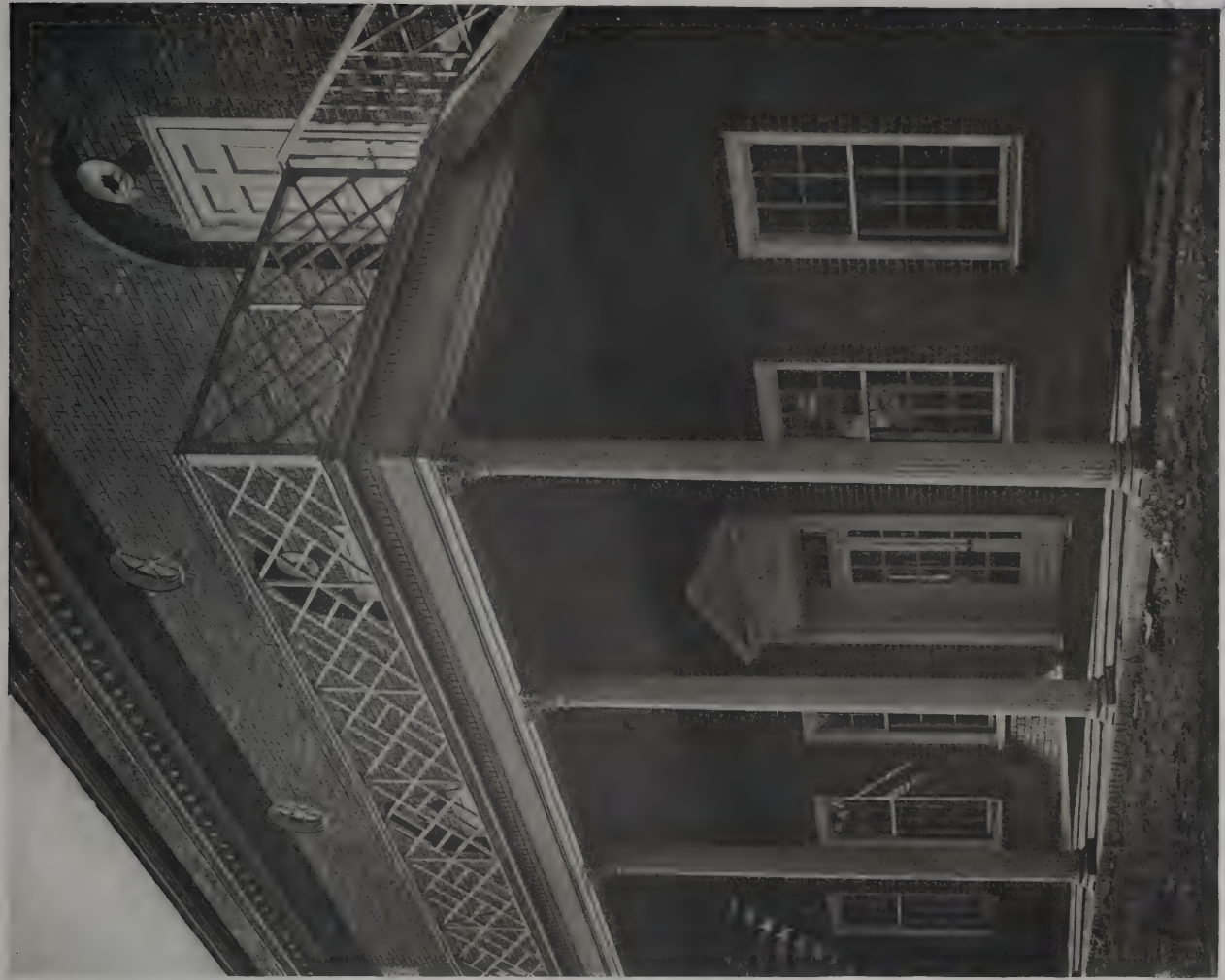
FIRST FLOOR PLAN



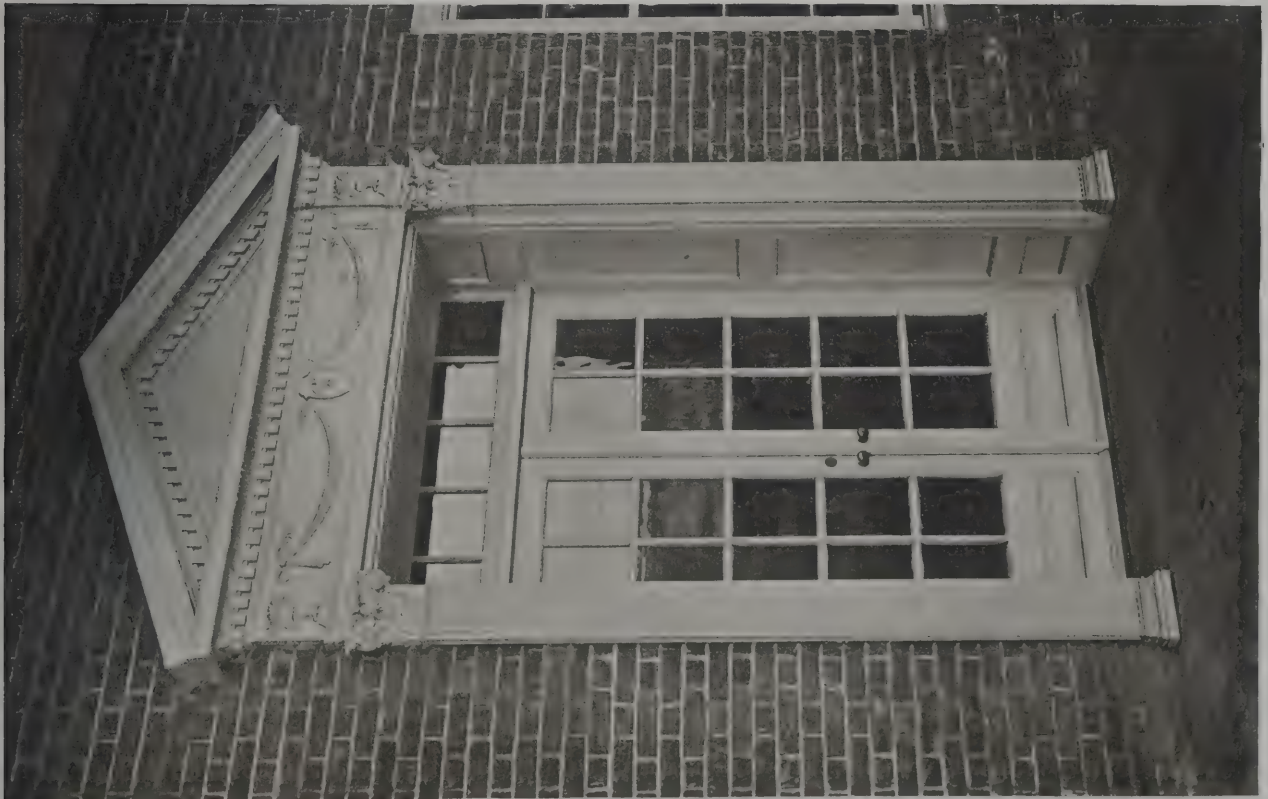
SECOND FLOOR PLAN

COMMUNITY BUILDING AT HEMINWAY PARK, WATERTOWN, CONN.

ELECTUS D. LITCHFIELD, ARCHITECT, GUION THOMPSON, CONSULTING ENGINEER



DETAIL OF REAR PORTICO AND EXIT BALCONY
COMMUNITY BUILDING AT HEMINWAY PARK, WATERTOWN, CONN.
ELECTUS D. LITCHFIELD, ARCHITECT, GUION THOMPSON, CONSULTING ENGINEER



DETAIL OF DOORWAY TO COMMUNITY ROOM



VIEW FROM APPROACH



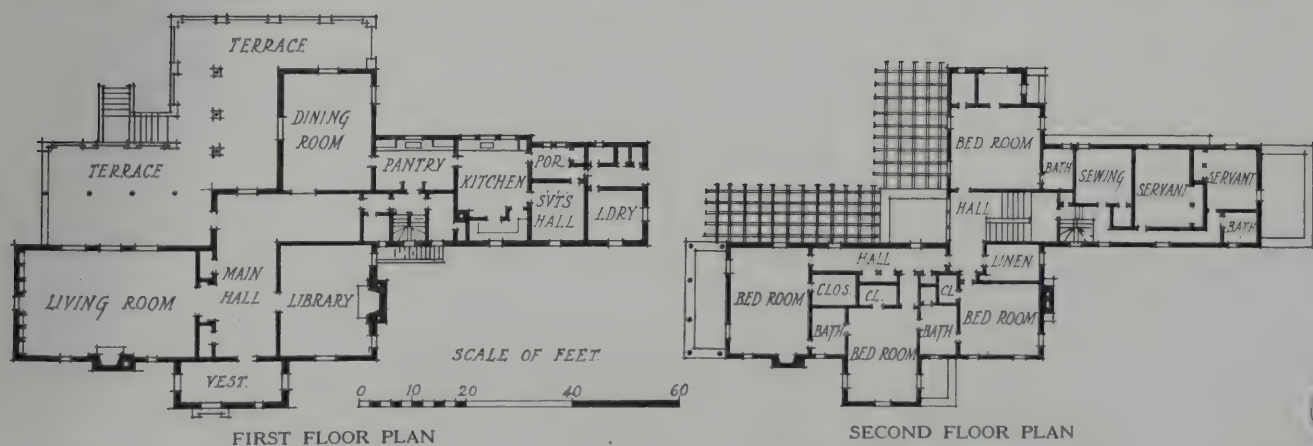
DETAIL OF ENTRANCE

HOUSE FOR MRS. R. W. RIVES, SANTA BARBARA, CALIFORNIA
REGINALD D. JOHNSON, ARCHITECT

ESTD
1910
3000

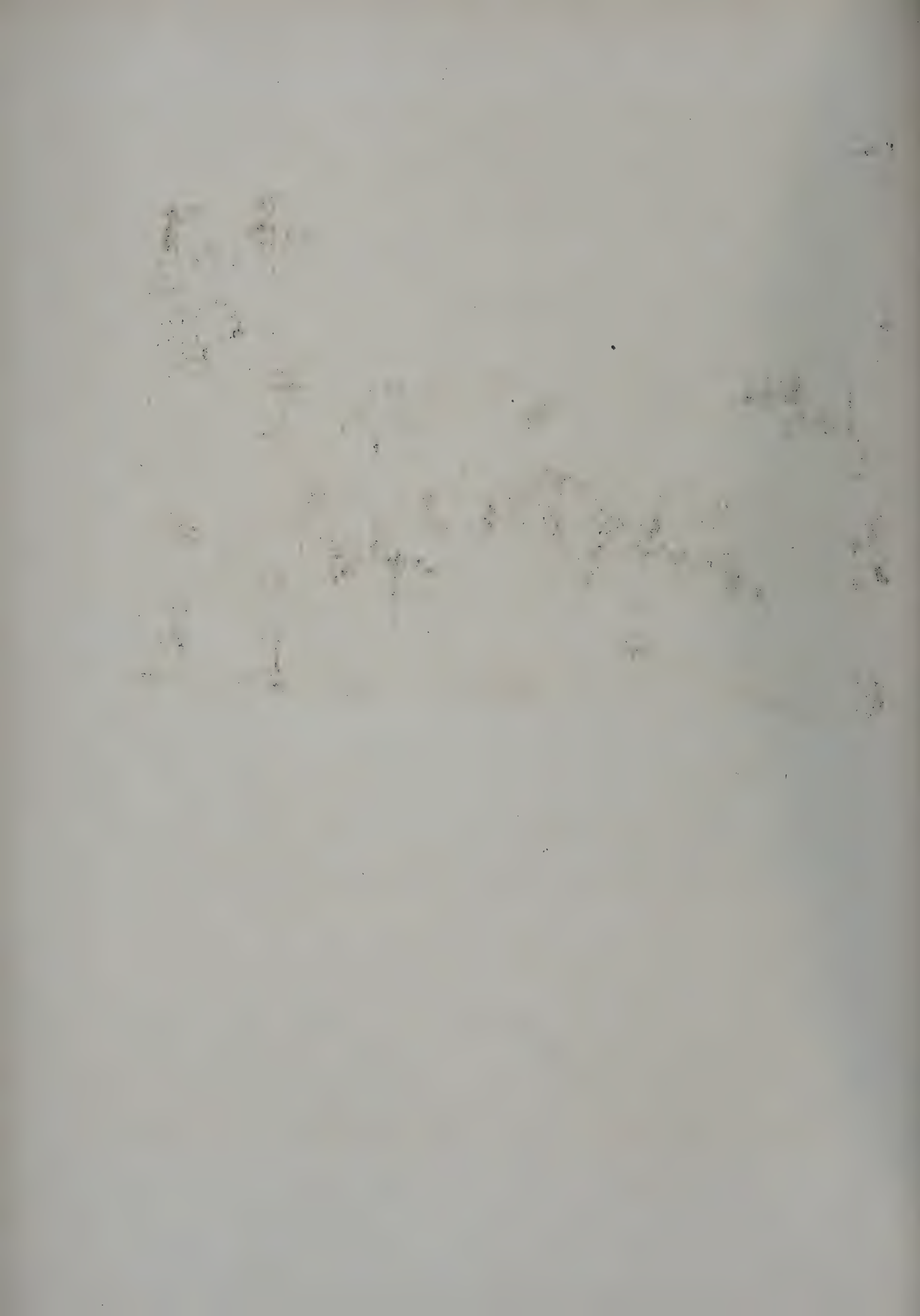


GENERAL VIEW



HOUSE FOR MRS. R. W. RIVES, SANTA BARBARA, CALIFORNIA

REGINALD D. JOHNSON, ARCHITECT



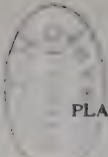


VIEW FROM STREET



VIEW FROM GARDEN

HOUSE FOR ANDREW MORISON, ESQ., MONTCLAIR, N. J.
WM. EDGAR MORAN, ARCHITECT



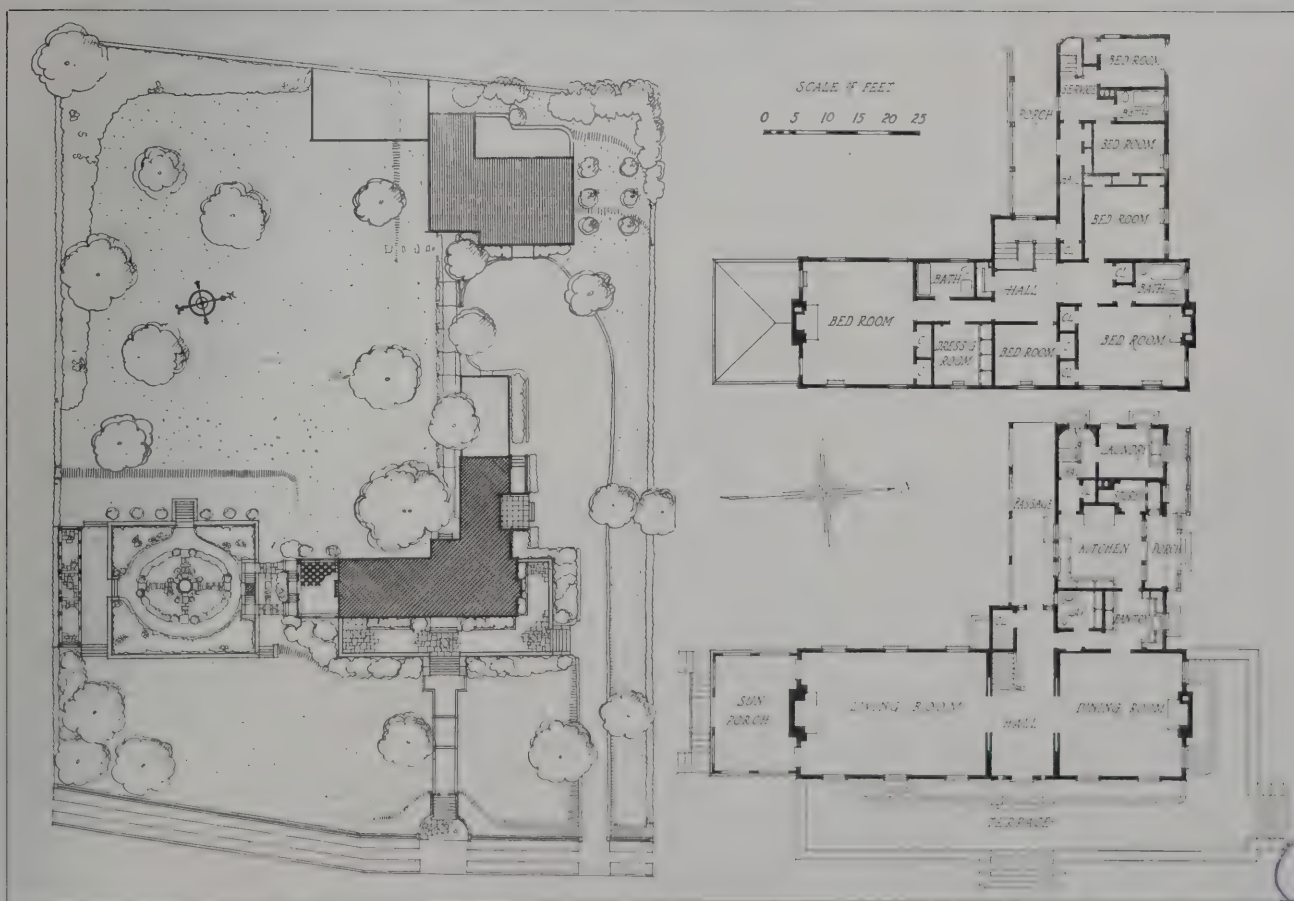
VIEW LOOKING NORTH FROM GARDEN
HOUSE FOR ANDREW MORISON, ESQ., MONTCLAIR, N. J.
WM. EDGAR MORAN, ARCHITECT



DETAIL OF FRONT DOORWAY



ARBORWAY FROM HOUSE TO STABLE



LAYOUT OF GROUNDS AND FLOOR PLANS
HOUSE FOR ANDREW MORISON, ESQ., MONTCLAIR, N. J.
WM. EDGAR MORAN, ARCHITECT

Proposed General Accounting and Cost System for the Michigan Society of Architects*

At a meeting of the Michigan Society of Architects in State Convention, held at Grand Rapids in 1916, the Chairman of the Committee on Forms and Documents called the attention of the convention to the fact that architectural practice might be strengthened and stabilized, and suggested that the convention recommend to the members the adoption of uniform records and accounting systems, as in this manner the individual would be able to compute accurately his costs instead of guessing, and in some instances not even guessing as to the value, but eking out some sort of an existence, believing he was making a fair margin of profit.

A motion was made that a committee be appointed for the purpose of gathering information from various architects as to methods in use in their several offices. A committee, consisting of Mr. Dalton R. Wells of Detroit, Mr. H. L. Meade of Grand Rapids and Edward C. Van Leyen as chairman, was appointed.

A circular letter was prepared, asking several questions relating to accounting methods, also requesting any further information architects had on the subject. So many replies were received, together with forms and suggestions, that the committee readily found that it had been appointed to a task requiring expert accounting experience. It was then determined to consult with Mr. Frederick A. Tilton, of the firm of Hollis, Tilton & Porte, chartered accountants, of Detroit. After a consultation,

the committee turned over to Mr. Tilton all of the information obtained from the various architects, so that he might read, study and learn the needs of an architect's office, and design a system and forms to be used for the purpose of accounting and record keeping and to be embraced in a report which the committee could accept and recommend.

Mr. Tilton entered upon his work with unusual interest and the result was that when the convention met we had this very able report to submit. As stated in the report, the system is so designed that any part of it may be adopted for use, depending upon the size of the office and the exactness with which an architect might desire his records kept. The report was submitted to the convention held in Detroit in February, 1918, and it was unanimously decided that it opened the way for further discussion and a report upon uniform practice and documents.

A new committee was appointed as follows: Mr. A. E. Munger, Bay City, Michigan; Mr. Leon Coquard of Detroit, Michigan; and Edward C. Van Leyen of Detroit, Chairman.

Believing that the report contains matters of interest to other architects of the United States, it is presented herewith in full for wider distribution.

EDWARD C. VAN LEYEN,
Chairman.

*To the Committee on Costs,
Michigan Society of Architects,
Gentlemen:*

In accordance with your instructions, we submit herewith an outline of an accounting system with suitable forms for use in an architect's office. This system is designed for adaptation to any sized office and for that reason may seem somewhat complex for use in the smaller offices, and too simple for the larger. For this reason we do not claim for it universal adaptability without the use of ordinary judgment, but feel that it will serve as a practical basis for amendments to meet both extremes, at the same time making available a common standard for the majority without change.

The subject is presented in the following sequence:

- Standard Chart of Accounts,
- Definition and Purposes of the various Accounts,
- Special forms of General Records with instructions as to uses,
- Special forms of Time and Cost Records with instructions for cost finding and distribution of overhead.

The General Records conform to general accounting practice and include the following loose-leaf forms:

BOOKS OF ORIGINAL ENTRY

- Cash Received Record
- Check Register
- Purchase Record and
- General Journal,

all of which it is proposed be kept in one binder, with the several sections separated by special tabs designating each, also:

POSTED RECORDS

- General Ledger

Accounts Receivable Ledger

Expense Ledger,

which also may be contained in one binder with distinguishing tabs for each.

Supplementing the General Records are furnished:

- Imprest Cash Receipt Forms
- Imprest Cash Envelopes
- Voucher Folder
- Voucher Index
- Pay Roll Sheet
- Approval Stamp,

the uses of which are defined in order.

The Time and Cost Records include the following:

- Daily Time Tickets
- Overtime Tickets
- Semi-monthly Time Summary
- Work in Progress Ledger,

which are described in order.

The General Records as arranged contemplate keeping the books on the so-called accrual system. That is, accrued but uncollected earnings and accrued but unpaid expenses are taken into account at the end of each accounting period (month). The purpose of this is to incorporate in each period the relative earnings and expenses whether paid or not. Of course if any firm pays all of its expenses promptly each month the cash basis will furnish accurate operating results and the method of accruing expenses is unnecessary. In this case the Purchase Journal may be discarded. We find, however, that few firms do actually pay all of their expenses in the month in which they are incurred and therefore advise the adoption and use of all the present forms.

The Time and Cost forms are designed to show the distribution of productive or direct time by man-

hours spent on individual engagements. The engagements are designated by job or file numbers. Briefly, the procedure is as follows, and for convenience we will refer to the working unit as a draftsman, although a superintendent or principal is supposed equally to report his working time.

The draftsman indicates on his daily time slip (Form 1-A) the time spent on each engagement during the day. The smallest time unit is a quarter-hour. He then posts at the close of each day to the semi-monthly time summary (Form 2) the total time spent on each engagement. On the 15th and 31st of each month respectively, the time summary is cross-footed and extended at the man's hourly rate. Allowable time not chargeable to jobs is collected together, to complete the draftsman's time record and total pay. So far we assume the general adherence to (a) the hourly-rate basis of pay, (b) semi-monthly pay days and (c) straight time for over-time. Deviations from these and means of meeting the various conditions are treated below.

The Time Summaries are posted to the respective jobs in the Work in Progress Ledger (Form 3), which contains also a page for non-chargeable time to complete the record. To this ledger is posted, also, a record of the hours spent, with provision for affixing and extending the overhead rate, also all direct charges for purchases and expenditures applicable to separate jobs. On the completion of each contract or engagement, the account is transferred by journal entry from Work in Progress Account to Cost of Completed Work. At the same time the client is charged and earnings credited for the contract amount.

Taking up the conditions created by varying office practice, such as method of spreading weekly and monthly salaries, premiums on overtime, etc., we have in their order:

Weekly Salaries. Determine the standard week-hours (45 or 48 or whatever the number) and compute the man-hour rate to the nearest cent. Charge the fractional surplus to non-chargeable time to balance draftsman's time sheet.

Monthly Salaries. Use the same method as for weekly salaries with the month hours and month rate as relative factors.

Premium on Overtime. As a rule overtime allowance is an evil created by office conditions with which no one job should be loaded. We propose, therefore, wherever overtime allowance is recognized, that it be collected separately and charged as an item of non-chargeable time (see Form 2).

Lost Time — Vacations, etc. Lost time created by sickness, vacations, etc., does not differ in character from non-chargeable office time, and is charged into the general expenses and distributed as overhead.

Distribution of Overhead. The method on which we propose that overhead be distributed is on the productive man-hour. The only other method would

be a percentage on the amount earned or on cost method which we believe would fall short of being as equitable. The General Expenses fully classified in the attached chart are treated as one group or control to which account is credited by Journal Entry the distributable overhead, the corresponding charge being to Work in Progress. We have drawn no distinction between General and Drafting Room expenses nor have we endeavored to subdivide the latter into plans and specifications sections. These are refinements which are not warranted in the average office. We have, therefore, to deal with a single overhead rate which is represented by the quotient resulting from dividing the sum of the General Expenses for any period by the Productive or Chargeable hours for the same period. To make this a matter of monthly computation involves not only a too frequent change of rate, but a degree of fluctuation which is dependent upon seasonal conditions. It is therefore urged that an estimate be made of the result covering a year's operation, which rate may be changed when the balance to the debit or credit of Undistributed Expenses is found, all things considered, to be inordinate.

We have above outlined in general the proposed schedule of accounts. On the following pages, in connection with each form, we will at risk of repetition, define the procedures still further.

Our explanations are purposely stated in elementary language to enable one not familiar with accounting terms to understand them. We are confident that these forms properly used will enable any firm of architects to arrive at accurate cost and accounting results in the individual office and believe that a general study and recognition of the procedures will open the way to standard practice and comparative statistical information.

Respectfully submitted,

HOLLIS, TILTON & PORTE.

Detroit, Michigan, February 5, 1918.

STANDARD CLASSIFICATION OF ACCOUNTS FOR ARCHITECTS' OFFICES GENERAL ACCOUNTS

ASSETS		LIABILITIES	
1	Imprest Cash	100	Accounts Payable
2	Cash in Bank	110	Salaries Payable
10	Accounts Receivable	120	Sundry Creditors
20	Sundry Debtors	130	Accrued Expenses
30	Work In Progress		— Unpaid
40	Cost of Completed Work	140	Reserve for Depreciation
50	Investments	150	Capital
60	Equipment	160	Surplus
70	Undistributed Expense	170	Profit and Loss
EARNINGS			
200	Fees		
210	Interest and Discount		
220	Miscellaneous		

EXPENSE ACCOUNTS

*Analysis of Charges to Account No. 70 —
Undistributed Expense*

- 701 Non-chargeable time of Principal
- 702 Non-chargeable time of Superintendent
- 703 Non-chargeable time of Staff
- 704 Overtime Allowance
- 705 Lost Time, Vacations, etc.
- 706 Office Salaries
- 707 Rent
- 708 Printing and Stationery
- 709 Drawing Materials
- 710 Telephone and Telegraph
- 711 Memberships and Dues
- 712 Light and Heat
- 713 Insurance
- 714 Automobile Expense
- 715 Contributions
- 716 Traveling
- 717 Periodicals
- 718 Legal and Accounting
- 719 Taxes
- 720 Depreciation of Equipment
- 721 Bad Debts
- 722 Miscellaneous Office

DEFINITION AND PURPOSES OF THE
VARIOUS ACCOUNTS

Imprest Cash. This is a fund set aside for use in the office in taking care of petty expenditures, such as express charges, freight, towel-supply, etc. The fund is of a round amount, say twenty-five dollars. When depleted, reimbursement is effected by drawing a check for the exact amount of the disbursements in the name of "Imprest Cash." Imprest Cash Receipt (Form 4) with Summary (Form 5), being an envelope for enclosing same, is submitted herewith.

Cash in Bank. Modern practice contemplates the depositing in bank of all receipts of cash in the same form as received, whether in currency, coin or checks. The Cash Received and Check Register (Forms 6 and 7) herewith contain columns for the proper recording of all bank deposits and withdrawals.

Accounts Receivable. This account represents the collective amount owing by clients. To it is charged all fees and advances for clients' accounts, and credited the sums received in payment thereof. An auxiliary ledger containing an account with each client is kept, the sum of the balances in which are supposed to be at all times in agreement with the controlling account.

Sundry Debtors. This account contains all charges for advances of money or other items not relating to clients. Unless they become too numerous, one page in the General Ledger will suffice for all individuals, provided each entry is described. When and if they become too numerous, a separate or auxiliary ledger may be opened as in the case of Accounts Receivable.

Work in Progress. This account should be charged

first with the inventory value of all work in progress. Thereafter, all charges arising through cost of work as direct or productive time, overhead, etc., are charged at the end of each month as collected or summarized from the individual time summaries. When any contract is finished, that portion of the Work In Progress represented thereby is credited to this account and a corresponding charge made to Cost of Completed Work. Form 3 herewith styled "Work in Progress Ledger" is intended to serve for the individual contracts. The sum of the balances in the latter should at all times be in agreement with the Controlling Account.

Cost of Completed Work. This account, as, implied represents the cost of contracts, all work on which has been finished. The account is closed once a year to Profit and Loss.

Investments. Charge to this account any outside investments, as Liberty Bonds, Stock, Debentures, etc.

Equipment. This account represents the asset value or cost of furniture, library, typewriters, instruments, rugs, antiques, safe, automobile, etc.

Credit the account with sales of any of the above.

Undistributed Expense. It is considered that all expenses are an asset ratable to the Work In Progress in the method above described.

Charge this account with all expenses accrued. A complete classification is furnished, which classification is spread by means of an Expense Ledger (Form 8) herewith, to show monthly comparisons. This ledger is to be kept in balance with the charges to the Controlling Account.

Credit the Controlling Account with the distributable overhead at the established rate as above described.

Accounts Payable. All purchases of labor, material, supplies, etc., as well as rent and interest, create a temporary liability. This liability is entered through the Purchase Journal (Form 9) and a corresponding charge made to the proper accounts. The Voucher (Form 10) herewith is a medium of entry with space for expense distribution. The total unpaid vouchers represent the Accounts Payable.

Salaries Payable. Except for statement purposes the Accounts Payable or Vouchers will serve as an adequate record of all liabilities. Because of the legal preferment surrounding wages and salaries, a separation should be made of the latter for statement purposes only.

Sundry Creditors. This is an account corresponding to Sundry Debtors except that here the prevailing condition of balances is on the credit or liability side. The drawing accounts of the proprietor or members of the firm are carried in this group.

Accrued Expenses Unpaid. Certain accrued expenses are impossible of final determination sufficient to insure accurate vouchering at any closing date. These include liability for taxes, interest, insurance,

etc. Estimates are therefore made and corresponding entries so as to show the approximate liability and corresponding charges to expense.

Reserve for Depreciation. Credit this account once each year with an amount representing the ratable depreciation for the year. The corresponding charge is to expense.

Capital. This represents the original investment of proprietor or members of the firm. Where there is more than one member it is necessary to show

each member's investment on a separate account.

Surplus. Carry to this account the net profits or net losses for the fiscal year. Charge all distribution of profits as made.

Profit and Loss. Charge to this account the balance of "Cost of Completed Work" account at the close of each year, as well as balances of all earnings accounts. In addition to these any adjustments of assets and liabilities which are not taken into expenses are made through this account.

FORM 6.											
CASH RECEIVED <u>January</u> 19 <u>18</u>											
MEMO. BANK BALANCE DR. BLACK CH. REC.	BANK DR.	CASH DISCOUNTS ALLOWED DR.	DAY OF MONTH	CREDIT TO	FOR WHAT	ACCT. NO.	GENERAL LEDGER CR.	ACCOUNTS RECEIVABLE CR.	PRIVATE LEDGER CR.	CR.	CR.
280.00				Totals Forward							
	50		5	Williams Dairy	On account			50.00			
	500.00			Murphy Estate	Estimate 10			500.00			
	100.00			J. Smith	on acct.		100.00				

Form 6. Record for Cash Received

CASH RECEIVED. Form 6 above is a record of all cash received, whether in the form of money or checks. It is counter-balancing, having two debit columns and several credit columns. It is intended that all cash be deposited in bank. If more than one bank is used, an extension of this form should be arranged with a separate column for each bank.

The credit columns are the General Ledger and Accounts Receivable. All cash received from clients should be entered in the latter column and posted to

the clients' account therefrom. Items of a special nature, such as cash received from loans, sale of equipment, etc., should be entered in the General Ledger column, and posted to the proper account in the General Ledger.

At the close of each month, in addition to the entries in the General Ledger column, there should be posted the total of Bank Debits and Accounts Receivable credits to the respective accounts in the General Ledger, completing the double-entry for this feature.

FORM 7.											
CHECK REGISTER <u>January</u> 19 <u>18</u>											
CHECK NO.	CR. BANK	CR. DISCOUNT	DAY	CHARGE TO	ACCT. NO.	DR. VOUCHERS PAYABLE	DR. GENERAL LEDGER	DR. ACCOUNTS RECEIVABLE	EXPENSE LEDGER	CR.	CR.
TOTALS FORWARD											
1	20		1	John Smith	Advances			20.00			
2	25.00			Detroit Board of Commerce - Dues	7/11					25.00	
3	170		3	Murphy Estate	Title No 25					170	
4	49.50			Multi Color Copy Co.	Dec. Acct	49.50					
5	599.20		15	Pay Roll	Pd's ended 1/15	599.20					
6	25.20			Gregory, Mayor & Thom	Dec. a/c	25.20					
7	25.75			Mich. State Tel. Co.	Jan. a/c	25.75					
8	18.20			Imprest Cash	No 1	18.20					
9	56.25			Union Trust Bldg Co.	Rent Jan	56.25					

Form 7. Typical Check Register Page

Form 5. (Above)
Monthly Summary of Imprest Cash
on Envelope Containing Receipts

tive hours. When the job is finished, the account is closed by crediting Work in Progress and charging Cost of Completed Work, and the sheets removed to a transfer file.

FORM 4

IMPREST CASH VOUCHER

No. 2

RECEIVED FROM Smith & Jones January 2, 1918

Two & 25/100 \$2.25 DOLLARS

FOR Additional on building permit

CHARGE ACCOUNT Murphy Estate

ENTERED ON SUMMARY No. _____

APPROVED ST

SIGNED Dept of Building

6-2-17-18

[illegible]

Form 8. Typical Expense Ledger Page

FORM 3		SMITH AND JONES ARCHITECTS & ENGINEERS DETROIT, MICH.		CLIENT OR OWNER <i>Murphy Estate</i>		FILE NO. <i>25</i>		SHEET NO. <i>1</i>		
JOB COST SHEET WORK IN PROGRESS										
DATE	PAY ROLL				OVERHEAD		DIRECT CHARGES		TOTAL	
	EMPLOYEE	HOURS	RATE	AMOUNT	RATE	AMOUNT	VOUCHER NUMBER	DESCRIPTION		AMOUNT
1918	Forward from old ledger									300.00
Jan 15	Alm Kettler	47	.60	28.20	33 1/2	15.66	2	Addition on Permit	3.25	
	J. Weber	61	.50	30.50	"	20.33	3	Car fare	1.70	
	E. Hughes	80	.40	8.00	"	6.66	6	Blue Print	7.20	
	L. Hicks	15	.40	6.00	"	5.00				
	J. Smith	10	5.00	50.00	"	3.33				
	Totals			122.70		50.98			10.35	194.03
										494.03

Form 3. Work in Progress Ledger

SHEET NO.		NAME <i>Work in Progress</i>		ACCOUNT NO.				
		ADDRESS <i>Controlling Account</i>						
DATE	Folio	✓	DEBITS	BALANCE	CREDITS	✓	Folio	DATE
Jan 2	2		3400.00		300.00			Jan 10
Jan 31	2		4220.00	6040.00	1280.00			" 31
			7620.00		1580.00			

Form 14. Identical Form for General Ledger and Accounts Receivable

TIME RECORDS AND SUMMARIES. The first operation in the recording of time is to indicate on the Daily Time Record (Form 1A) the time spent on each particular job. This form is used by all employees as well as the principals. A separate form is furnished for overtime work (Form 1B).

The total hours shown on the Daily Time Records is posted to the Semi-Monthly Time Sheet (Form 2). Paid-for time not chargeable to jobs is entered under non-chargeable time at the bottom of the sheet: Twice a month these sheets are extended and footed, the result being, in the case of hourly rate men, to accrue the amount earned. In the case of salaried men payable weekly or monthly, a method of pro-rating above described is to be used.

The amounts representing cost of time spent on each job are posted to the Work In Progress Ledger (Form 3). The non-chargeable time is

posted to the Expense Ledger under accounts 701 to 705 as the case may be. On the Pay Roll (Form 13) herewith the time of all men is collected; this is then attached to voucher for payment. The general distribution is shown on the voucher, for entry in the Purchase Record, the secondary distribution already having been made to Work In Progress and Expense. This completes the record of costs for time.

FORM 1A.		SMITH AND JONES ARCHITECTS & ENGINEERS DETROIT, MICH.	
DAILY TIME RECORD			
NAME	FILE	DATE	
Alm Kettler		Jan 9, 1918	
26	Williams Dairy Co	Sketch Storage Building	
	Lunch		
	Same		
APPROVED BY <i>D.S.</i>			

Form 1A. Daily Time Record

FORM 1B.		SMITH AND JONES ARCHITECTS & ENGINEERS DETROIT, MICH.	
OVER-TIME RECORD			
NAME	FILE	DATE	
Alm Kettler		Jan 9, 1918	
27	Molokine Sugar Co	Layout	
APPROVED BY <i>D.S.</i>			

Form 1B. Overtime Record

Building Construction in 1919

WITH the war ended our thoughts naturally turn to the re-establishment of normal peacetime pursuits and the restoration of losses caused through directing all our energies to the war's prosecution. We have now entered the first year of the reconstruction period, and though sufficient time has not elapsed from the signing of the armistice for the readjustment of many industrial factors which are necessary to a complete resumption of pre-war activities, there are enough indications of the probable trend of events to make a brief study of future conditions of some value.

Architects have felt, more keenly than any others associated with the building industry, the depression caused in it by the war. While the actual restrictions imposed by the Government on building were of short duration, the whole period since the outbreak of the war in 1914 was distinctly unfavorable to building, at first because of high money rates and difficulties connected with financing, and later because of extraordinarily high prices of labor and materials coupled with a shortage of workers.

This has caused a lack of buildings of all types extending quite generally through the country, which has not been relieved in any large measure by the construction carried on by the Government, for this in all cases was to meet special needs of war and was in great part only temporary and incapable of serving any other purpose. There is, therefore, a most insistent need for much new building, notably work of municipal character, schools, office buildings and apartments in the larger cities, and small, comfortably appointed houses in practically all sections.

Previous to the war the annual expenditures for building in the United States greatly exceeded \$2,000,000,000. A study of statistics covering the last four years shows a marked decline in building figures until, in 1918, a small fraction of the normal amount was reached, when the Government's program is left out of consideration. During this period the population has been increasing, and under normal conditions there would have undoubtedly been a proportionate increase in the amount of building over what was usual in the years previous to 1914. We have, therefore, this greatly decreased production which must be balanced in the near future, and it is not unreasonable to expect the next few years to record building expenditures that will exceed by a very large margin our previous highest figure.

There are, furthermore, many additional factors which make this course probable. During the war our manufacturers were spurred on to rates of production they had not accomplished before, and many additional workers found employment in our great industries. This greater effort has made possible

larger earnings for both capital and labor and they are both concerned in continuing large production. This can only be accomplished through building up foreign trade with many outlets for our manufactured goods that previously we did not consider necessary. This expansion of business is already taking place and its effect on the demand for additional warehouses and factories will soon be felt. It is even now exemplified in the rapidity with which space being released by the Government is taken up.

There has also been a very perceptible increase of wealth in the country and a wide circulation of money, much of it passing into new hands that are ready for its investment in new buildings. The farmers of the country are notably more prosperous than in many years; they have also been educated through the work of the Department of Agriculture and the various state schools of agriculture, to look upon better farm buildings as a necessity for securing a proper return from the soil, making the general improvement of farms a most likely result to follow the war. Works of important civic character are being urged at the moment in many localities as essential to aiding the economic situation raised by the demobilization of large numbers of soldiers, and because of the ease with which we have financed huge war loans, the difficulties generally associated with financing these enterprises will not seem so great that they cannot be overcome.

On the other hand some apprehension is felt over the high prices of both labor and materials in force today. We have been told of the stand labor has taken with respect to any reduction in rates of pay or change in hours from the general standards that were gained during the war, but while aggressive labor unionism may be much in evidence, it cannot by any means control the entire situation; it is difficult to get away from the old law of supply and demand, and if there is any prolonged period where the supply of labor greatly exceeds the supply of jobs, the price of labor will react accordingly, without much reference to previous plans to the contrary. There can, however, be no drastic reductions in wages until the cost of living has been reduced, and this depends in turn so much upon the extent we will be called upon to supply food to Europe, that no sense of definiteness can be given any opinion.

The prices of some of the basic building materials have already been reduced and with the resumption of full capacity production, denied most of them through the war period, and the replenishment of stocks, some further reductions may be expected. There is no early possibility of their returning to much lower figures and probably no possibility of their receding to pre-war levels, at least for years to come.

Steel Framing for Long-Span Construction

ACCOMPANIED BY DRAWINGS SHOWING SOLUTIONS OF TYPICAL PROBLEMS

By N. A. RICHARDS, ASSOC. MEM. A. S. C. E.

WHEN floor systems were constructed largely or entirely of wood and supports of wood and brick, clear spans between supports were naturally and effectively limited by the strength of the material, or by the bulk of members of large strength. Architects and engineers who had only these materials to work with for the structural features of their buildings did not have to consider or speculate very much on the desirability or profit of keeping the show windows in their stores clear of piers or columns, nor on the probable increased rental value of their office or loft space, if forty-foot clear spans were provided on each floor, instead of twenty-foot. The materials they were working with carried their own limits. Today, however, with steel and concrete in almost universal use in the frames of the better classes of buildings, the question of "can a thing be done?" is almost eliminated and the real points at issue are "is the thing desirable and is it of economic advantage?"

Office and loft buildings are commonly built with about eighteen or twenty-foot spacing of columns, sometimes less. Keeping the column spaces small, of course, decreases the size and weight of the steel beams and girders and hence is economical in the first cost of the framework. However, there is another side to the question. Interior columns at best are obstructions in the floor space, particularly when the occupancy and partition arrangement of each floor is not determinable in advance. The elimination, or at least reduction in number of the interior columns, may make all the difference between an attractive and usable floor space and a poorly arranged and impossible layout for a prospective tenant. With steel framing it is possible to go to almost any length in the elimination of columns. The real basis for determining the point is, will this or that arrangement pay? Will the rental value of the floor be increased if two lines of interior columns be used instead of three or four? Will the probable increased rental value more than pay for the carrying charges on the extra cost?

Take a typical case of a corner lot fifty feet wide and one hundred feet deep. The service for the building, the elevators, stairs, toilets and smoke-stack are usually grouped along the inside wall of the building and near the center, leaving the fronts free for offices or open lofts. A longitudinal line of columns is naturally placed at the inside edge of the service space, or, say nineteen feet from the inside lot line, leaving thirty-one feet to the outside lot line. If the line of columns along the street front is one foot six inches from the building line, there

remains a span of twenty-nine feet six inches which must be crossed in the clear, or else an intermediate line of columns must be introduced. Suppose there are five interior lines of columns across the short way of the building, making six spans of approximately sixteen feet each. On a span of twenty-nine feet six inches the girders in an office building, with a total load per square foot of one hundred and sixty pounds, would be twenty-four inch I's weighing one hundred pounds per foot; whereas, if the span be divided by an intermediate line of columns the girders would be fifteen-inch I's weighing forty-two pounds per foot. The longer span consequently means an increase in the steel of the difference in the weight of the girders, or about four and a quarter tons per floor. With steel at \$65 per ton erected (a normal figure before the great increases incident to the war), this means \$276 per floor. The cost of fire-proofing and plastering would also be slightly increased. If the foundations were on soil, requiring cantilevers along the lot line, it might also mean some increase there owing to the extra load thrown on the outside columns. Probably \$370 would represent the maximum increase per floor for any usual case. It would, therefore, only be necessary to increase the renting value of the floor, say five per cent of \$370, or \$18.50 per year to cover this increase. The attractiveness of the floor area free from interior columns would undoubtedly give a greatly increased value to the building as a renting proposition. The figures indicate that an absurdly small increased rental would pay for the carrying charges on the extra cost. Even taking into consideration wartime prices of perhaps \$110 per ton for steel the increased rental required is still nominal.

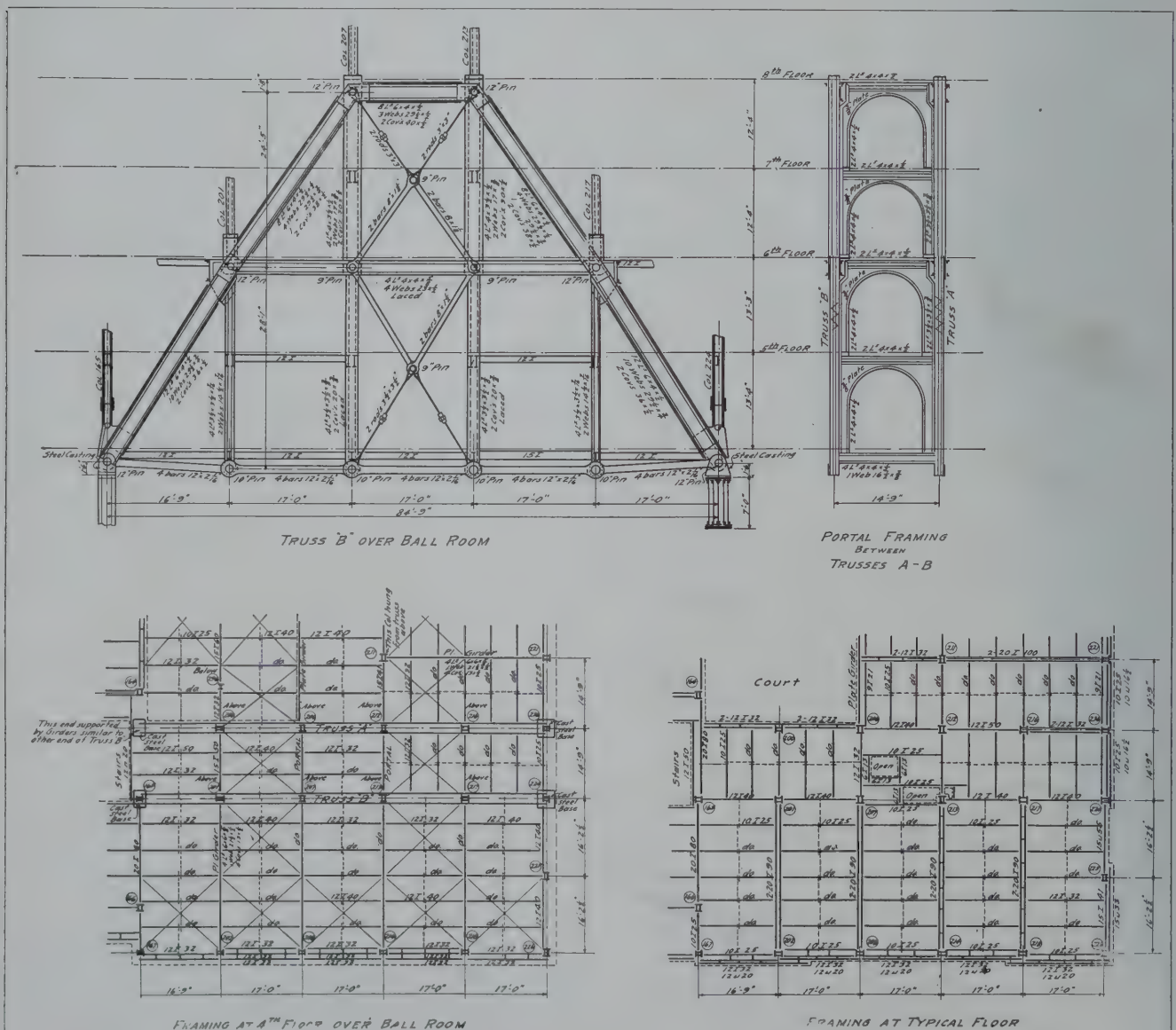
There is one further point to be considered which might in some cases add to the cost of the building. The long-span girders in the example given above are nine inches deeper than with the short span. The floor system between the girders is the same in either case. For some purposes it might be required to keep the story height beneath the girders at a fixed figure. In this event the total height of each story would have to be increased by nine inches if the long span were adopted. This increase would cost about \$200 to \$500 per story, depending upon the character of the walls and partitions. But even this would require only a small additional rental to cover. If a sprinkler were used in the building it would be quite possible, with practically no extra expense, to cut holes in the webs of the girders and run the pipes through them, thus avoiding pipes below the girders.

In hotels, clubs and other buildings of a public character where large meeting rooms and dining rooms occur, it is always desirable to eliminate the columns in such rooms. Take the case of a hotel where the upper floors are arranged in regular wings for the accommodation of bedrooms. It is usual to space the columns in the upper part of the building to fit the room and corridor layout, and to step off such columns as interfere in the large rooms by means of girders and trusses, transferring their load to columns which can run down without interference. If the columns to be carried in this way are heavy, or if it is desirable to avoid using deep girders over the large rooms, it is sometimes possible to work in trusses with the bottom chords in one floor and the top chords in another. One of the early cases of an arrangement of this sort, and a case remarkable for the great size and weight of the trusses, is in the

Waldorf-Astoria Hotel, New York City. Trusses spanning eighty-five feet and four stories in height carry the columns over the ballroom. There are two trusses, each carrying four columns. The portion of the hotel in which these occur was built about twenty years ago, and the trusses are of the pin-connected type.

Another example is found in the Copley-Plaza Hotel, Boston. One truss of eighty-six foot span and two stories in depth was used to carry columns over the main dining room, and smaller trusses of forty-seven foot span and one story in depth cross the tea room and carry the columns above. In each case passageways are provided through the trusses, the corridor passing through the smaller ones.

Another type of building where the elimination of columns has grown to be a necessity is the theater or auditorium. By a careful study and arrangement



Details of Trusses Spanning Ballroom, Waldorf-Astoria Hotel, New York City

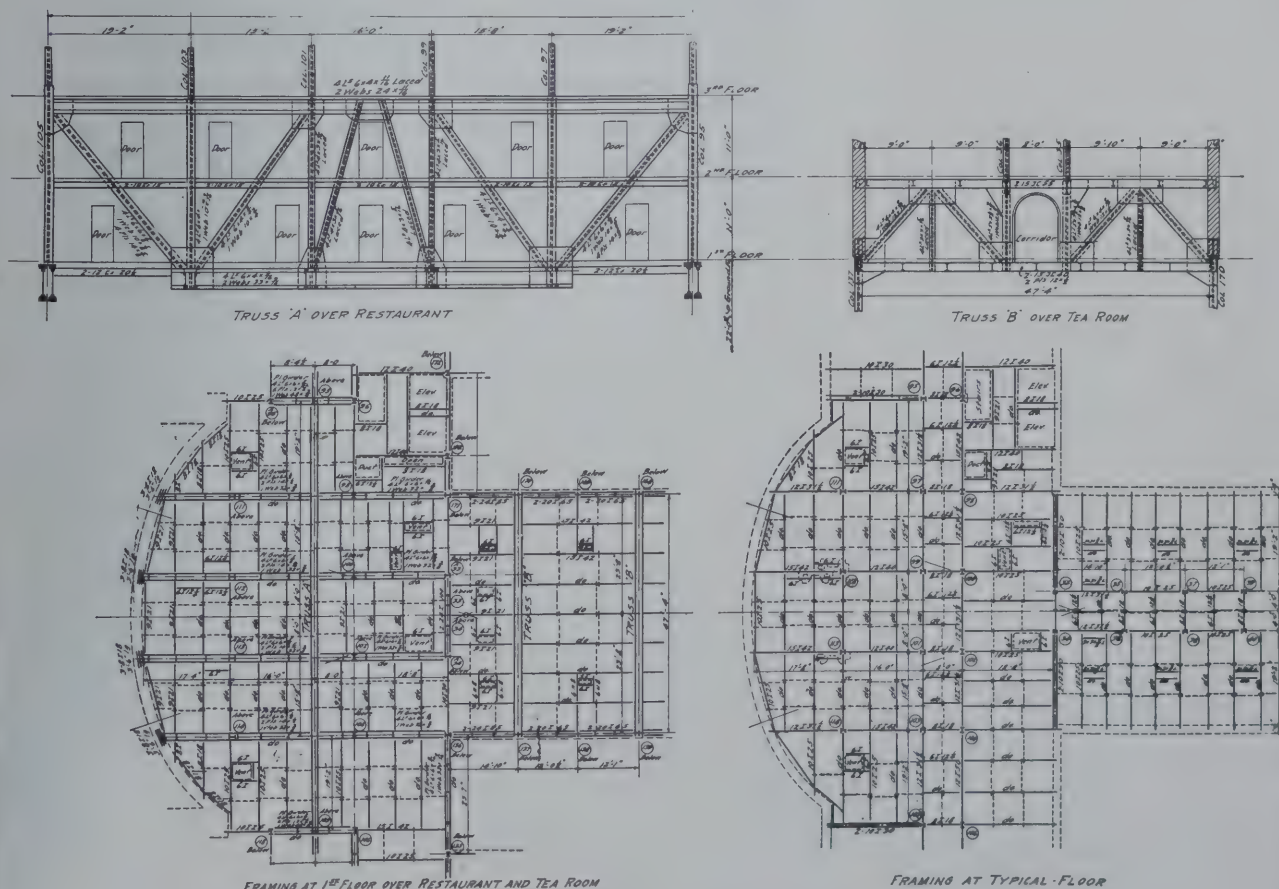
H. J. Hardenbergh, Architect; Purdy & Henderson, Engineers

of the lines it is possible, in any ordinary case, to obtain sufficient room in the balcony and gallery construction to allow of girders or trusses spanning from side to side of the building, thus eliminating the columns which in the older theaters are extremely objectionable, particularly if one is unfortunate enough to be seated behind one. The illustration from the framing of the Princess Theatre, Montreal, will indicate how the framing was handled in this case to accomplish the desired result. Fulcrum girders span about ninety feet from side to side of the house, and the cantilever girders for the balcony and gallery are framed through these. The cost of this type of construction, against the lighter framing with interior columns to support the balcony and gallery, would not be more than \$5000 or \$10,000 in any usual case, and the theater is made vastly more attractive. Furthermore, the stiffness of the entire framework is really improved by the deeper construction necessary in this type of framing.

Great improvement can often be effected in the arrangement of store fronts by decreasing the number of wall columns or eliminating the intermediate ones entirely in the first story. This can be done

by using steel girders at the second or third-story levels, concealed behind the usual heavy cornice bands at one or the other of these levels. An excellent example of the way in which this can be handled, even with a building of considerable height, is found in the Bonwit-Teller store building, New York City. Two girders side by side on a span of about seventy-six feet are placed at the third-floor level, where a heavy architectural band course occurs, and carry the intermediate columns. The second floor, along the street front, is then hung from the girders and no intermediate columns appear in the show windows. This would be somewhat difficult and expensive where the foundations were on soil or piles, as very heavy loads are thrown to the corners of the building and must be cantilevered in again to the footings. In the case in question, however, the foundations were on rock, and practically the only increased expense was in the steel, which amounted to about \$7500.

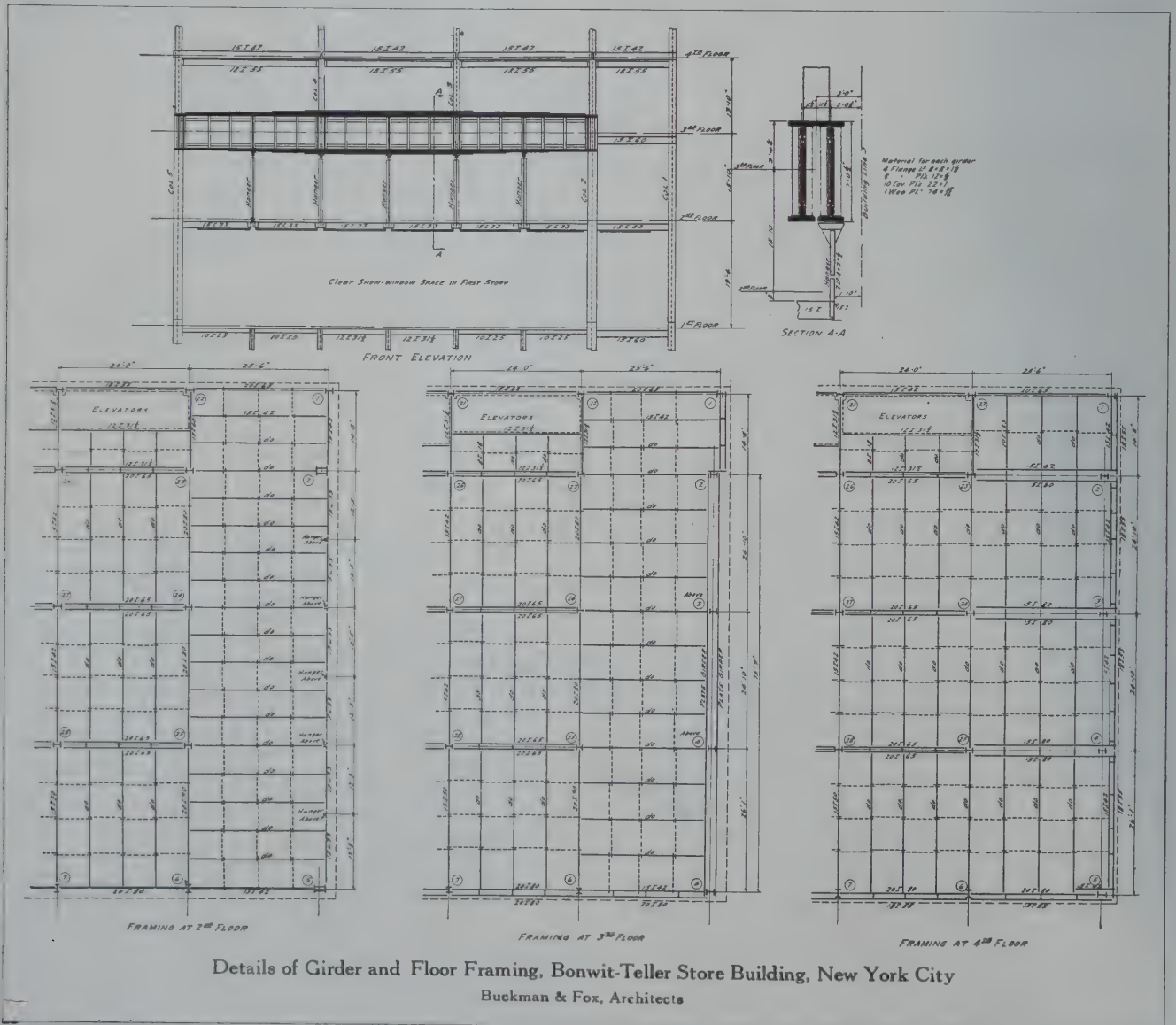
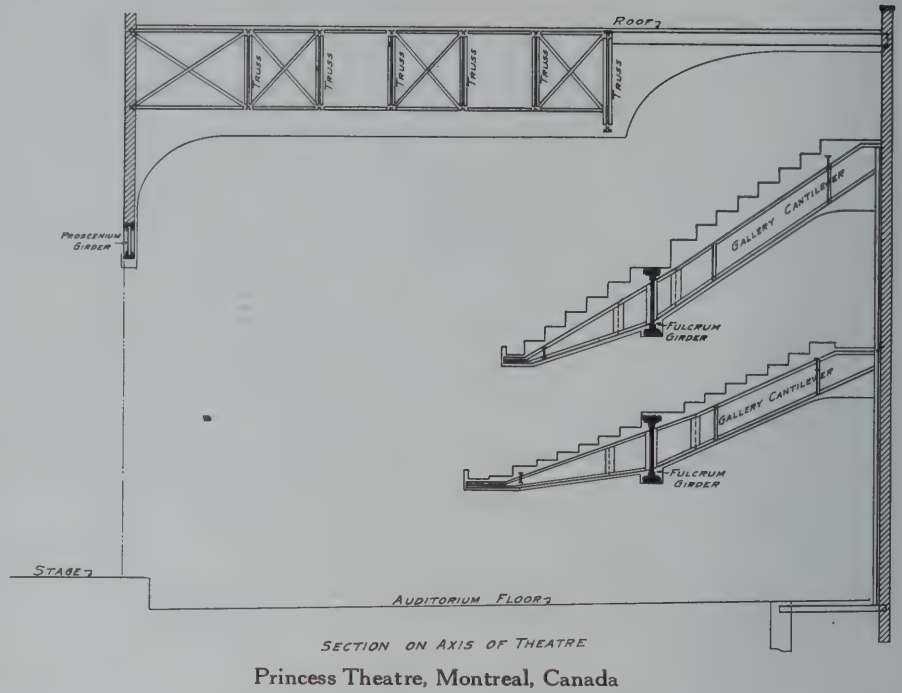
In shops and manufacturing buildings the spacing of the columns is largely determined by the size and arrangement of the machines and by the requirements of the shop operation. The question of the exact

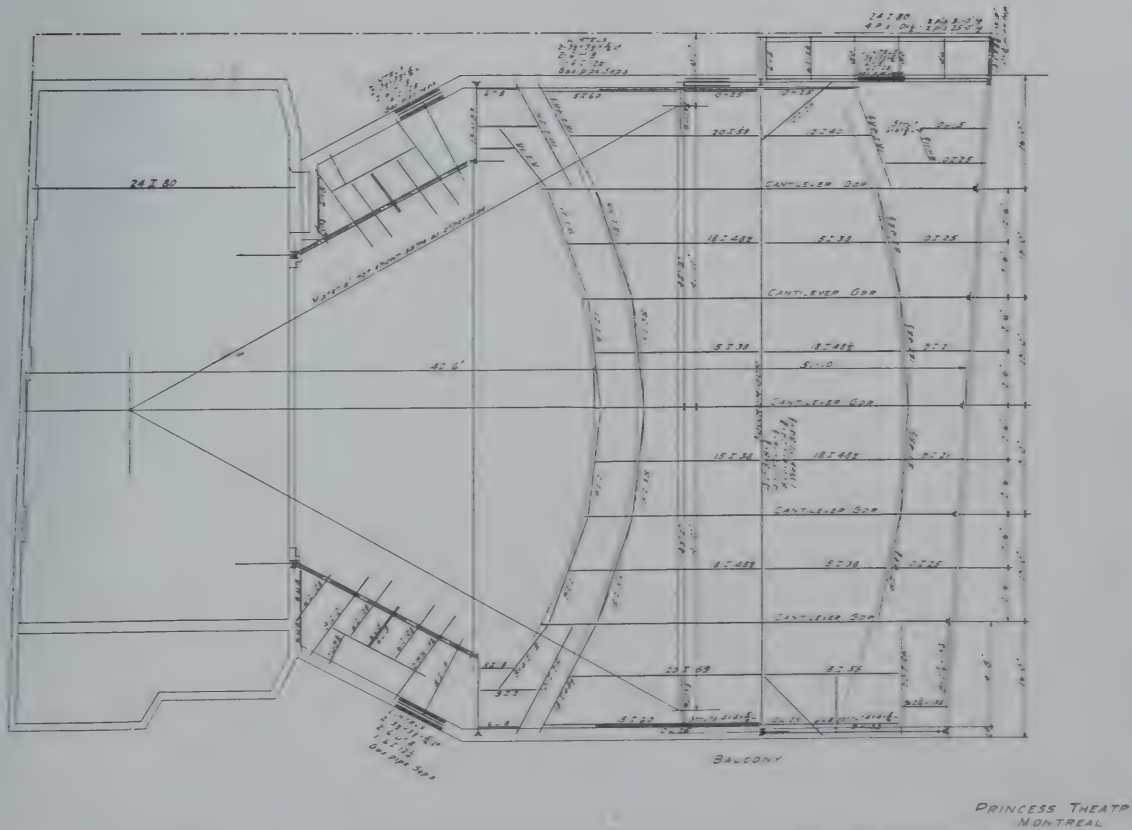
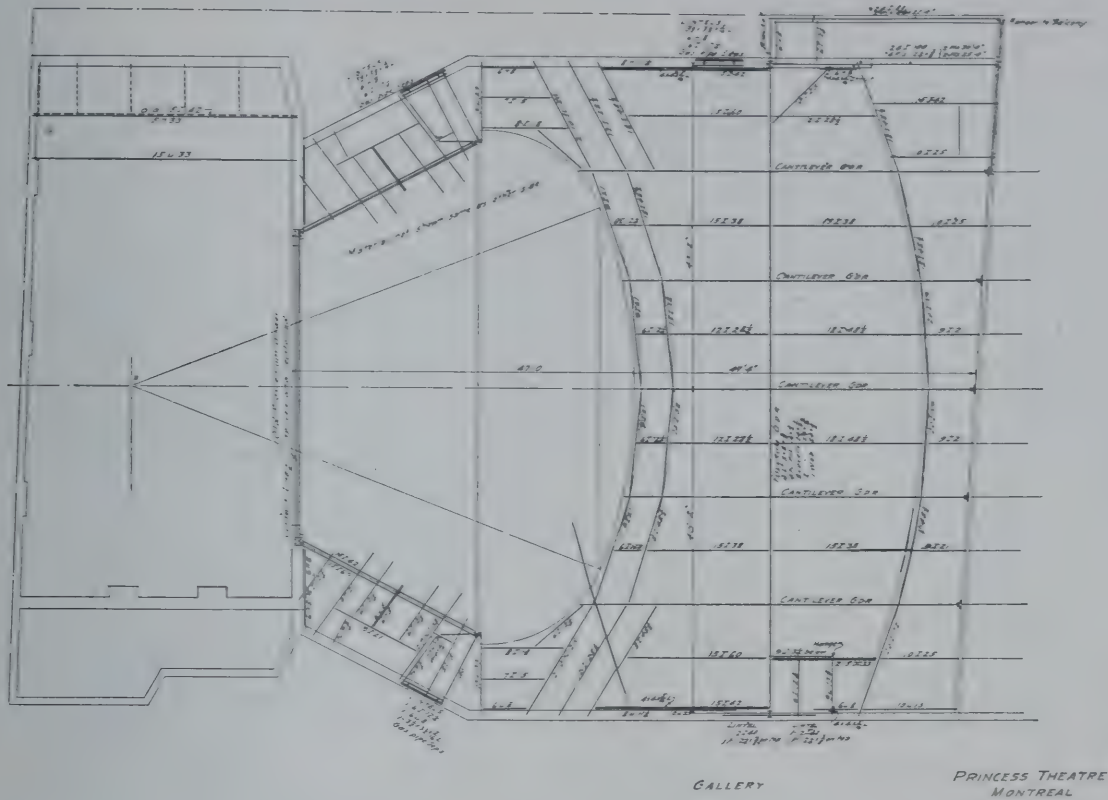


Detail of Trusses Spanning Restaurant and Tea Room, Copley-Plaza Hotel, Boston, Mass.

H. J. Hardenbergh, Architect; Purdy & Henderson, Engineers

economy of the building construction is not so much a determining feature here. It might not be far amiss to reverse the common way of looking at the matter and to consider all buildings, whether office, hotel, residence, store or what not, just as the engineer does the factory: make the building fit its particular work and probably the real economy will be found in doing that. The construction that best fits its purpose, which calls for attractiveness and flexibility in the office or public building as surely as in the residence, is the best investment. A judicious use of wide spans, with the consequent elimination of columns, will often help measurably in the accomplishment of this end.





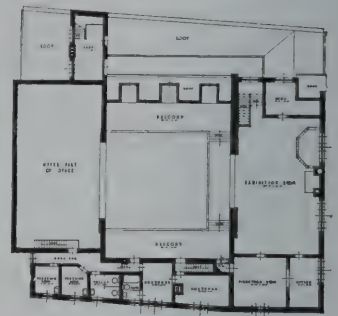
Balcony and Gallery Framing Plans, Princess Theatre, Montreal, Canada
D. J. Spence, Architect; Purdy & Henderson, Engineers

Building of the Arts and Crafts Society, Detroit, Mich.

SMITH, HINCHMAN & GRYLLS AND WILLIAM B. STRATTON, ARCHITECTS



General View of Street Facade



Second Floor Plan



First Floor Plan

THIS building is of especial interest because of the greater attention that will undoubtedly be shown the arts and crafts movement following the war. It is well planned for carrying on its activities, it combines in a successful degree the requirements of store, shops

and general meeting and exhibit space. The construction is of masonry with stucco coating and tile roof. The interiors are simply done in stained woods and rough plaster. The view shown is of the first floor exhibition room or the street front.



Notes on the Government Housing Developments

THE war brought to hopes of reality no greater good than the beginning of a movement for better housing among the working people of the United States. It required that serious emergency with the absolute necessity of producing the sinews of war in terms of ships and munitions to make it appear proper for the Federal Government to interest itself positively in helping supply proper housing accommodations. This action on the part of the Government was noted with particular satisfaction by the architectural profession, for it knew the good results that had been obtained in England and European countries through a wise housing policy, and foresaw lasting benefits that could be derived here through similar means.

The work of the Government was only well under way when the signing of the armistice caused the pendulum to swing in the opposite direction, threatening the speedy resumption of our former indifference. It was good judgment on the part of the Housing Corporation that dictated the cancellation of contracts on developments just started and those in early stages of construction, where the immediate necessity for houses was removed, but later events beyond that body's control indicate the intention of forcing drastic curtailment and a disregard for expert advice.

The agencies charged with carrying out the housing program are composed of men who brought to their work a greater spirit of service and better preparation for fulfilling their duties than probably those of any other war emergency board, and their counsel should be considered in any retrenchment plans deemed necessary. They were charged with investigating all requests for relief of housing congestion and shortage, and only after careful surveys covering the use of surrounding territories that might be made available through better transportation facilities, or a reduction of plant production to accord with available housing accommodations, where such reduction did not jeopardize the essential demands of war, did they recommend the construction of houses, and then only in such localities as showed a continuing need for accommodations was permanent construction considered. This was eminently a conservative policy and one, which if followed to a logical conclusion, could not entail loss to the Government.

The factors which dictated the action of the housing commissions in establishing developments might now with reason be considered when the ending of the war removes the necessity of speeding up munitions production and consequently the Government's immediate interest in housing, but the character of procedure that may take place, if not offset by public opinion, is indicated by the resolution recently passed by the

Senate calling upon the Housing Corporation to stop all work not seventy per cent completed, irrespective of its location or possibility of meeting an established peace-time industrial demand, with the thought that enterprising builders will take over the uncompleted houses at some figure acceptable to the Government.

If this means of disposing of the developments is determined upon it will be most unfortunate for the cause of good housing in the United States. These developments were conceived by the best architectural talent in collaboration with town planners and engineers, and if permitted to be completed will present in tangible form, the best modern thought on the housing problem. If not completed and sold as they now stand, they will in all probability fall into the hands of real estate speculators devoid of any appreciation of the ideals built into them, who will use them as a means of securing the utmost financial return from those who happen to occupy them.

We cannot believe that this will be the policy adopted. The latest reports from the daily press that the House of Representatives' Committee on Public Buildings and Grounds advocates the completion of a selected list of the developments, indicates that the general disapproval of the Senate's resolution injected a more constructive note in the consideration of the problem and it is hoped this favorable action may prevail.

The start of a great housing program has been made and only a cursory examination of results already achieved shows the value derived from the co-ordination of forces which the Government, because of the emergency, was able to assemble. Proper housing is one of the important factors in preventing labor unrest and building better citizenship, and as such, it merits the serious consideration of the nation. It is a new problem to us and though it was an important part of our war preparations, its complete solution cannot be expected at once. Important steps toward a solution have been made and they must be preserved; we cannot revert to former indifference. The governmental developments should be carried to completion where their continued use is assured, thereby furnishing a practical application of ideals, needed to establish a public appreciation of good housing.

The following letter received from Mr. Robert D. Kohn, lately associated as Chief of Production with the Housing Division of the Emergency Fleet Corporation, written in response to a request from the editors for a brief statement of present indications of the development of a definite policy, shows the need for interest on the part of the public. Architects have a special opportunity of furthering this worthy movement by exerting their influence toward building up an intelligent public conception of it.

Editors, The Architectural Forum:

The situation with regard to the housing developments started by the Government during the war is still too indefinite to make it possible to anticipate the policy that will be adopted. The next few weeks will probably determine one way or another just what is to happen. There are, however, a few salient points, reference to which in *THE ARCHITECTURAL FORUM* would have value, because of the effect that an aroused public opinion on the subject might have upon the Government's policy.

With regard to the work of the United States Housing Corporation, which dealt with accommodations for workers in the munition plants, navy, army, etc., I have no first-hand knowledge. The newspapers reported that a resolution had been passed by the Senate directing that all work of that Corporation be stopped which was not more than seventy-five per cent complete. Today's papers report that, at a hearing held yesterday, delegations appeared from several cities protesting most strongly against such action, and that the Secretary of War himself opposed action of that character, saying that the shortage of houses and other accommodations for workers at certain points was very serious, particularly in Washington, and that the need would not immediately decrease. I need hardly tell you that my own view is that it would be a most unfortunate thing to abandon work already started, on any such principle. Each situation should be looked into on its own account, and the completion or abandonment of a project should depend on whether or not the houses in each particular location may have a permanent value for industries other than war-time industries.

As for the developments undertaken by the Emergency Fleet Corporation, the situation is somewhat different. As is well known, these housing developments had progressed to a point far nearer completion than those undertaken by the other branch of the Government. In some twenty-five different centers, a total of many thousands of houses may be said to have been close to completion at the time of the signing of the armistice, and indeed, in probably half the villages, houses were actually occupied; thousands of workers were already accommodated in dormitories, hotels and apartments.

And yet despite this very advanced state of the projects undertaken for the Emergency Fleet Corporation, the success or failure of this part of the Government's housing ventures is still dependent on what is done in the future. There will undoubtedly be some sort of Congressional investigation, and unless Congress is enlightened by forceful public opinion, the investments of the Government amounting to many millions of dollars will be seriously endangered and the

future of housing reform in America seriously imperiled. These projects are advanced in general to such points that they need only the finished grading, finished street paving, sidewalks, and planting in the spring to make them physically complete. But something else is lacking in almost every one of these projects, much more serious than the absence of finished streets. I here refer to the matter of buildings to supply the need of a community life.

Through causes over which my associates and I had no control, we were prevented from carrying out a program for the construction of schools, stores, recreation places, etc., which features are absolutely essential to the success of the various communities established near the shipyards. I need hardly argue this point. At a recent date, there seemed to be a possibility of securing schools for the various sites, but even these have hardly advanced. Already the effect of the absence of these community features is evident. And unless the need is immediately supplied and Congress permits (it would be too much to expect them to order) the construction of all those features, including hospitals, that are essential to the completion of these towns, workers will refuse in the main to move into the houses and the loss will be colossal.

There is one other thing that needs to be done and which also, through no fault of my associates, has too long been neglected. This is the need for a definite and wise management policy with regard to the various housing projects of the Shipping Board.

The difference between success and failure of any particular housing development is evidently dependent, in a great measure, on the wisdom with which the property is managed and on the establishment of wise principles with regard to use of the property, restrictions as to nuisances, garages, billboards, etc., encouragement of interest on the part of the tenant in the upkeep of the property, proper rental bases, and the hundreds of other things that go to make good municipal housekeeping. As far as I know, up to the present time, there has been no general policy established on this subject, although preparation of such a policy has been urged for six or eight months.

I can only echo here what was said recently to me by a Government official unexpectedly well qualified to express an opinion. He agreed with me that, unless these Government towns are actually completed so as to provide for a whole community life, and unless a wise policy of management be established, it were better for the cause of decent housing in America that the Government had never started to build any of its projects.

Yours very truly,

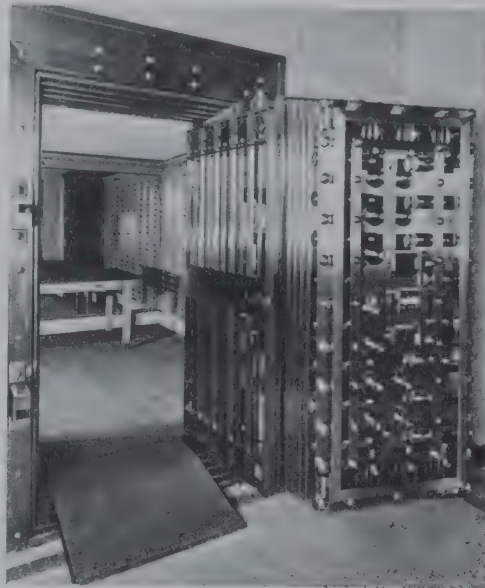
ROBERT D. KOHN.

New York, January 9, 1919

Office Building of the Woman's Benefit Association of the Maccabees, Port Huron, Michigan

SITUATED in a residential district upon the crest of a slope which rises from the bank of the St. Clair River at Port Huron, Michigan, the new Home Office Building of the Woman's Benefit Association of the Maccabees has a commanding view of the city and Lake Huron to the north. The site is a generous lot providing broad lawns dotted with shading elm trees and low shrub planting, with opportunity for other landscape development. The main facades of the building present a skilful intermingling of the three greatest Renaissance schools,—the ensemble being appropriate and dignified in its adaptation to an edifice of this type. The exterior walls are entirely of limestone and where detail occurs careful regard for the character of the material is observed.

The main lobby or grand stair hall is reached through a vestibule having two sets of bronze doors. The walls of the lobby are of domestic, green-seamed, cream-colored marble, and the floor of alternately contrasting squares of light and dark. Directly opposite the entrance, above a landing of the marble stairs is a tablet framed under a broken pediment and flanked by tall electroliers. The balustrade



Bond Vault on Main Floor



Application File Room, Second Floor

of the stairway is of bronze and extends around the open well of the second floor. An ornamental skylight sheds a pleasing quality of light on the stairway and lobby below. Adjoining the entrance lobby are the alcoves of the reception clerk, telephone switchboard, visitors' room, and the bond vault, the heavy door of which is visible from the lobby, while corridors at either side of the stairway lead to administrative offices and the assembly hall. This spacious hall used for gatherings of field workers and social events derives its richness from its simplicity of motive and color scheme. The paneled walls are cream color, and heavy rose hangings with applique of green frame the windows and proscenium.

On the second floor, grouped about the large marble hallway, are offices of the chief executives, clerical departments, editor of the association's journal, and ladies' waiting room. The coloring throughout the building is kept in light shades of ivory, gray and green. Furniture for specific uses was designed and executed in mahogany, and the comprehensive selection of materials for their relative uses is apparent in the finest of bank fittings and steel window sashes.



Assembly Hall



General Office

Richard E. Schmidt, Garden & Martin, Architects

Editorial Comment

IT is highly gratifying to observe the interest that is being taken by the daily press and citizens in general in discussing tentative plans for War Memorials and the evident desire on the part of deep-thinking people to obtain such memorials as will be suited to a proper recognition of the valorous part played by American troops in the great war. It is everywhere recognized that a type of memorial is demanded that will differ materially from that erected by past generations in honor of previous military achievements. The principles of honor and justice, in defence of which the United States took up arms, rightfully deserve perpetuation in memorials that will truly bespeak these qualities. It is not great military conquests we will record, it is not wide extensions of empire we will commemorate, nor is it the great military capacity of any leader of soldiers we will acclaim. It is the American ideal of freedom and equality among all men, which prompted us, a nation quite removed from any immediate danger, to pour out millions of our best young men and billions of our national treasure without ever a suggestion of return, that we must memorialize. Can we interpret this spirit in a memorial that is a hollow adaptation of forms originally conceived to do homage to a conqueror of nations, or a builder of empires? Decidedly no! Such a monument cannot bespeak American ideals and will not be a true memorial to the American lives which were so gladly sacrificed for the perpetuation of American principles.

The spirit of the war has been service. Let us carry this spirit to our memorials and make them intimate parts of the lives of the people, not awe-inspiring piles of granite or marble, that may express might and power, but never the deep-felt human qualities aroused by piratical actions on the high seas, and the beast-like destruction and enslavement of Belgium.

In what way can we better proclaim our joy at the humbling of this despotic power and honor the lives sacrificed in the accomplishment of this victory than by making our cities proper dwelling places for Americans, by removing those dark, disease and crime-breeding spots to which the immigrant who comes to our shores quickly gravitates, forfeiting his opportunity of learning American customs and appreciating the value of citizenship? Must the soldier, who came from the slums with willingness equal to that of any other, return to them after serving his country and perceiving through his experiences in training camp and field the benefits derived from sunshine, fresh air and proper housing? It is to be hoped the further development of true democratic ideals will prevent it. Though we are looked upon as the most democratic of nations, we

suffered before the war from many social and racial distinctions. Many of these fortunately were leveled by the war and it should be our steadfast aim to make the sense of unity and national consciousness thereby developed a permanent reality, and as one writer has expressed it, "set against the old individualistic doctrine of the rights of man, the principle of the new freedom—the responsibilities of man." We must cultivate the spirit so ably portrayed in a sentence from Premier Lloyd George's reconstruction program, "Britain must be made a fit country for heroes to live in."

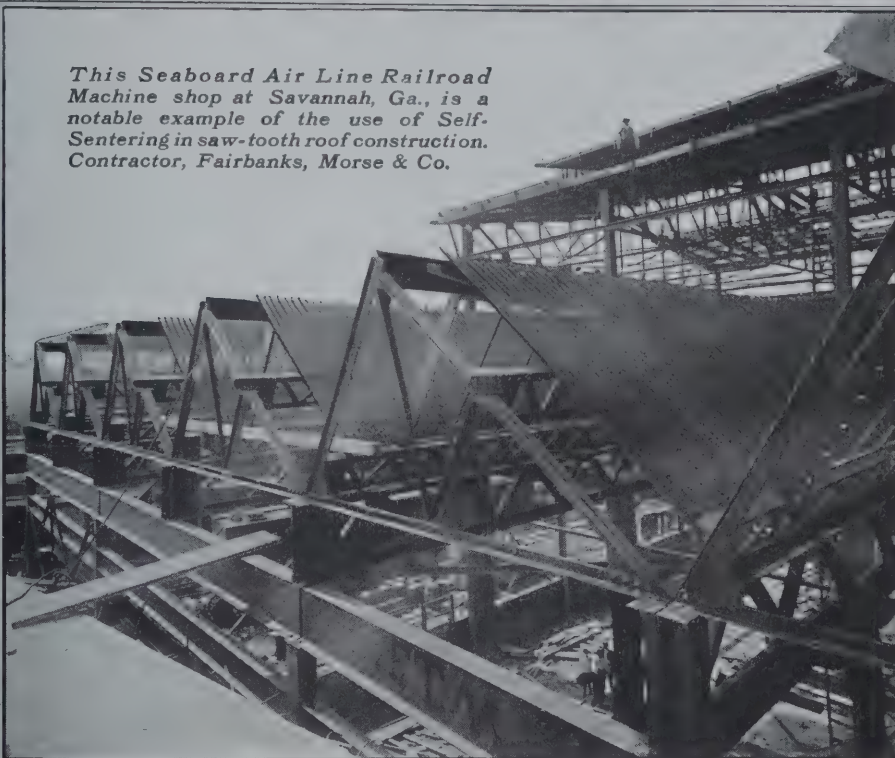
Our American cities with the exception of Washington have grown without the aid of any carefully devised plan, and even much of the possible beauty of Washington and many of its practicable working features have been lost because of unwillingness on the part of those in authority to follow the lines of development marked out by L'Enfant.

It is not too late to begin anew. We have learned from the war the value of orderly development and co-operation of forces. We have reached a new scale of financial expenditures and have been visibly affected by a new concept of democratic ideals. These influences are sufficient to overcome objections that have in the past stood in the way of municipal improvements, that would benefit the whole people. Let our desire to do honor to our soldier and sailor dead be the immediate and compelling incentive to carry out this work so badly needed.

Open up these congested portions of our cities in such a manner that their inhabitants may enjoy the benefits of fresh air and sunshine, develop arteries of communication through them that will greatly relieve the congestion which is threatening to engulf our transportation facilities, create open centers and plazas where buildings to serve the community needs may be grouped and monuments to particular deeds of valor and groups of heroes may be erected to be constant reminders to the people of the sacrifices made that our ideals might live.

Much is being said of reconstruction, the remaking of a world in which the ideals of the present age will find full representation, where truth, righteousness and freedom will obtain for all, thereby justifying the sacrifices of life that have been made in the name of these principles. We will need to perfect our development in small units before we can successfully build a new world; let our labors then begin with the city and town where much can be done to improve their physical aspects, affording all citizens the right to decent living conditions. We will thereby prove in a possible and practical way that the war has made the world better, and in so doing raise a memorial of enduring value and eminent appropriateness.

This Seaboard Air Line Railroad Machine shop at Savannah, Ga., is a notable example of the use of Self-Sentering in saw-tooth roof construction. Contractor, Fairbanks, Morse & Co.



Economical—Durable—and Fire-Safe

The illustration shows the use of GF Self-Sentering by the Seaboard Air Line R. R.—the saw-tooth roof of their great machine shop at Savannah. In all cases, this construction will withstand the hottest flames, and is amply staunch to bear a load in excess of standard requirements. Yet its use means less concrete, less weight, and lighter framework through the structure.

Self-Sentering is a combined centering and reinforcing for concrete roof and floor construction. It consists of a parallel series of heavy, cold-drawn ribs connected by diamond mesh—a most efficient form of expanded metal.

Self-Sentering

Reinforcement for Concrete Construction

Self-Sentering is economical because it does away with temporary wooden forms. It acts as a form for the wet concrete, and becomes a permanent part of the finished structure. This type of construction saves labor, because the large, stiff sheets are quickly and easily put in place, and the concreting is relatively simple.

In addition to all types of concrete

roof and floor construction, Self-Sentering can be adapted to many special uses requiring either straight or curved forms. There is also a heavy demand for Self-Sentering on alteration and repair work.

Every engineer and architect should write today for our complete data on Self-Sentering and other GF Building Products. The GF Fireproofing Handbook sent free to those interested.

The name of the GF dealer nearest you can be obtained by phoning Buyers Aid, Inc., in cities of 70,000 or over. Ask them to send you the GF catalog or we will send it to you direct from the factory.

THE GENERAL FIREPROOFING CO., Youngstown, Ohio

Manufacturers of All Types of Metal Lath, Concrete Reinforcements, Waterproofings and Technical Paints

Members of Associated Metal Lath Manufacturers

Branches: New York Philadelphia Chicago San Francisco
Kansas City Atlanta Cincinnati Buffalo Utica



IN ZERO WEATHER



F. W. Cook Building, Fargo, N. D. Architects—Ashelman & Gage. This building constructed while thermometer hovered between 10 and 20 degrees below zero.



I-JOIST

Metal Lumber

These joists and studs of formed steel always go into place easily and rapidly. In any weather the inner structure of the building can go up with the walls.

Metal Lumber is light, strong, fire-resistive, permanent construction.

Send for our Bulletin L-24

The Berger Mfg. Co., Canton, Ohio

BRANCHES: Boston, New York, Philadelphia, Chicago,
St. Louis, Minneapolis, San Francisco
EXPORT DEPT.: Berger Building, New York City, U. S. A.



Construction View,
F. W. Cook Building.
Note Berger
Metal Lath on joists
in foreground.



BERGER

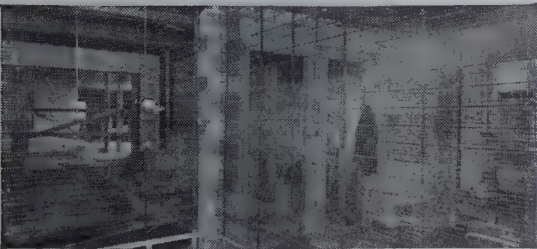
EXPANDED METAL LATH-FLOOR CORES-REINFORCING PLATES-METAL LUMBER
STEEL FILING CASES-LOCKERS-FACTORY STORAGE BINS AND SHELVING
STEEL CEILINGS-ROOFING-SIDING AND OTHER PRESSED STEEL PRODUCTS



Hy-Rib Roof Ready
for Concreting



Also for Ceilings



Also for Partitions, etc.

The Quick and Economical Way to Build Fireproof Roofs and Sidings

Build with Hy-Rib — insure having structures that are fireproof and permanent, yet economical and quickly built. Hy-Rib builds concrete roofs and sidings which need be only two inches thick and require no form work—thus saving labor and material.

At about half the cost of other permanent constructions, Hy-Rib produces monolithic sidings. Roofs of Hy-Rib are light in weight, fireproof and economical. Hy-Rib is also widely used with concrete, stucco and plaster for partitions, ceilings, walls, floors, etc.

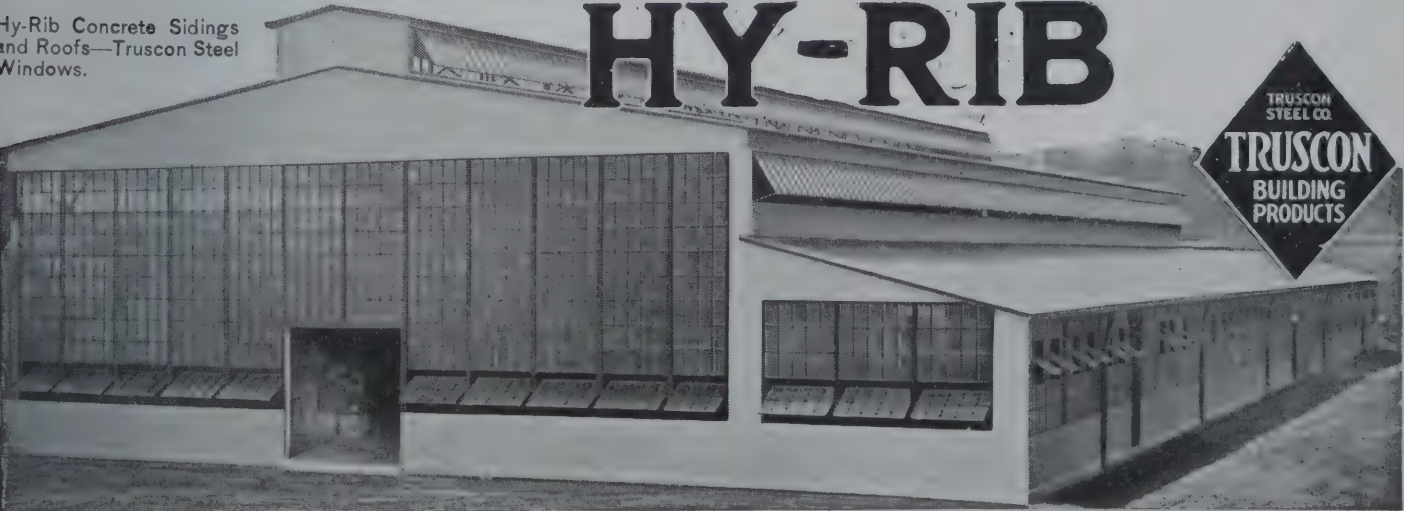
Hy-Rib is a steel-meshed sheathing with stiffening ribs. Furnished in all types, weights, thicknesses of metal lath; also channels, corner beads, etc. All products are so designed and built as to save time and labor on the job.

Stocks of Hy-Rib products are carried locally in all parts of the country, avoiding delays and the need of waiting for material. The Hy-Rib way of building is quick as well as economical and fireproof. Send for useful Hy-Rib book. Return coupon, indicating size and use of proposed building.

TRUSCON STEEL COMPANY
(FORMERLY TRUSSED CONCRETE STEEL CO.)
YOUNGSTOWN, OHIO.
WAREHOUSES AND REPRESENTATIVES IN PRINCIPAL CITIES

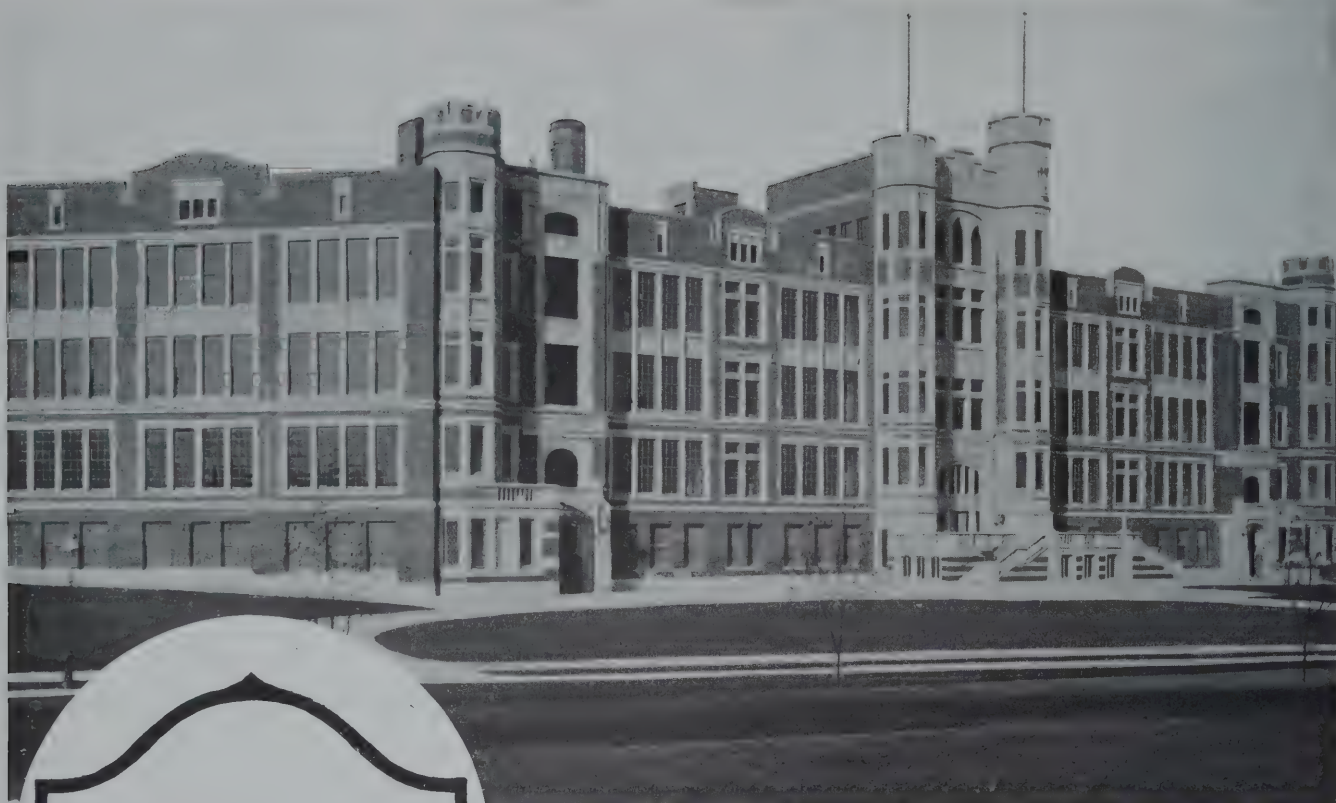
HY-RIB

Hy-Rib Concrete Sidings
and Roofs—Truscon Steel
Windows.

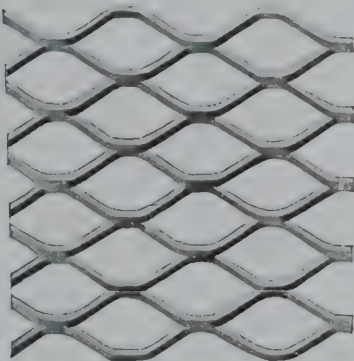


Truscon Steel Company
Send free Hy-Rib book and suggestions on a building size.....
to be used for

Name.....
Address.....



*Distributors in all
Principal Cities*



A DEQUATE stocks of all Nemco Products—Kno-Burn, Kno-Fur, Kno-Burn Corrugated Metal Lath, Chancelath, Econo, etc., are now obtainable from dealers in all principal cities.

***Have You
The Kno-Burn Book***

Sooner or later you will need it for reference. A complimentary copy is yours for the asking. Will you write for it now?

Buildings Such as This Require Fire-Resisting Construction

KNO-BURN Metal Lath is the first choice of most well informed architects for important work, because they are convinced that it possesses distinct advantages of strength, fire resistance, permanence and ultimate economy not excelled by any other form of construction.

Kno-Burn

TRADE MARK

METAL LATH

Used as a base for stucco and for all other interior and exterior plastering work—to prevent cracking and discoloration of the walls and ceilings—to preserve the beauty of the decorations, **Kno-Burn** is continually winning fresh encomiums from leading architects and builders everywhere.

NORTH WESTERN EXPANDED METAL COMPANY

Members of The Associated Metal Lath Manufacturers

934 Old Colony Building

CHICAGO

THE ARCHITECTURAL FORUM

VOLUME XXX

NUMBER 2

CONTENTS for FEBRUARY 1919

PLATE ILLUSTRATIONS

	Plate
RECENT COUNTRY HOUSES DESIGNED BY PEABODY, WILSON & BROWN, ARCHITECTS	
C. D. Barnes, Esq., Manhasset, Long Island, N. Y....	17-21
Mrs. J. E. S. Hadden, Westbury, Long Island, N. Y. . .	22-24
A. Ludlow Kramer, Esq., Westbury, Long Island, N. Y.	25-28
Huntington Norton, Esq., Oyster Bay, Long Island, N.Y.	29, 30
John S. Phipps, Esq., Old Westbury, Long Island, N. Y.	31, 32

LETTERPRESS

	Author	Plate
VIEW IN PERSHING SQUARE, NEW YORK CITY..		Frontispiece
THE EDITORS' FORUM.....		19
THE COTTAGE-PLANNED ORPHANAGE. I		
Harold C. Whitehouse		33
CHICAGO NURSERY AND HALF ORPHAN ASYLUM, CHICAGO, ILL.....		40
Holabird & Roche, Architects		
THE PROMOTION AND FINANCING OF BUILDING OPERATIONS.....	Charles A. Whittemore	41
A Brief Consideration of Accepted Methods and Their Connection with Architectural Practice		
NOTES ON PRICE MOVEMENTS IN THE BUILDING INDUSTRY		46
A GROUP OF COUNTRY HOUSES ON LONG ISLAND		47
Peabody, Wilson & Brown, Architects		
THE ARCHITECT OF THE FUTURE. C. Stanley Taylor		51
Part II. Sales Organization in an Architect's Office		
THE NEW ARSENAL TECHNICAL SCHOOLS AT INDIANAPOLIS, IND.....		55
H. Van Buren Magonigle, Architect		
EDITORIAL COMMENT.....		62

Published Monthly by
ROGERS AND MANSON COMPANY

85 Water Street, Boston, Mass.
Advertising Department, 42 West 39th Street, New York

Yearly Subscription, payable in advance, U.S.A., Insular Possessions and Cuba \$5.00
Canada..... \$5.50 Foreign Countries in the Postal Union 6.00
Single Copies..... 50 cents All Copies Mailed Flat

Trade Supplied by American News Company and its Branches. Entered as
Second Class Matter, March 12, 1892, at the Post Office at Boston, Mass.
Copyright, 1919, by Rogers and Manson Company



VIEW IN PERSHING SQUARE, NEW YORK CITY
From photograph by John Wallace Gillies

This illustration is the second of a series showing distinctive architectural street composition of New York City. Detail of Grand Central Station with Hotel Biltmore in background.

THE ARCHITECTURAL FORUM

FOR QUARTER CENTURY THE BRICKBUILDER

VOLUME XXX

FEBRUARY 1919

NUMBER 2

The Cottage Planned Orphanage

PART I

By HAROLD C. WHITEHOUSE

THERE are many methods of caring for normal dependent children. Many authorities say the "placing out" of the dependent child in a properly selected home is the ideal way; this is true, but not always workable in some localities and not favored. Others prefer the orphanage where the child is cared for from early childhood up to and beyond the age of adolescence.

Whatever the method, it is essential to have some sort of a receiving home, which would be "a wayside inn on the road from homelessness to a home. It is a clinic for medical and surgical examinations in order that the mental age and characteristics of children may be ascertained. It is a school for brief courses in manners, conduct, and, in addition, a place where human love, sympathy, Divine teaching and promise may reach lives that have too often previously suffered physical, mental and spiritual neglect." *

Whether the institution is organized for the permanent care of the child or does a work of "placing out," the most modern and up-to-date method of caring for the child is by the cottage plan. There are, however, many well planned and well administered institutions built on the congregate plan, where the children are housed in one building, but most authorities favor the cottage group system.

There are many schemes for housing of dependents in cottage-planned orphanages. In general, the system is to divide the total number of children into groups of eight, twelve, sixteen, twenty, twenty-five and even thirty to a cottage (any number higher than this usually borders on the congregate plan), housing them in separate cottages under the care of a cottage mother or matron.

A conference called at the White House in 1909 by President Roosevelt pronounced emphatically in favor of the cottage plan, and indicated the number of twenty-five as a desirable unit.

Of course, boys and girls should be kept in separate cottages. Each cottage has its own kitchen and dining room, in fact is a typical home in all its appointments, where the child may be given as near a normal home life and instruction as possible. The

children do most of the housework, such as cleaning, bed-making, cooking and the serving of meals.

The schooling of the children is either under the direction of the institution having its own school system, together with industrial training; as that of the Hebrew Sheltering Guardian Society, Pleasantville, N. Y., and the New York Orphanage, at Hastings-on-the-Hudson; or the children may be sent to public schools. Some institutions maintain their own grade schools and send the child out to the public high school. Where the institution maintains its school system the hours of school are worked out to suit the system of home training in the cottages. Allowing the orphan children to mingle with playmates at the public school seems the best system, and is, of course, less costly.

It is of inestimable value to any architect who has the planning of an orphanage to inspect the institutions of this character in the country, and become familiar with their methods. An architect planning an orphanage should be thoroughly acquainted with the entire workings of the administrative side of it. If he knows this, the many mistakes incorporated into the various institutions of the country will not be duplicated.

The writer has recently been planning an orphanage, and three months were spent with the trustees in formulating a scheme of administration, and the consultations were almost daily throughout that time. Dr. Hastings H. Hart, an authority on child helping, in his book on "Cottage and Congregate Institutions for Children," Russell Sage Foundation, says: "The architect should be selected early in the proceedings. If possible he should have had some practical experience in erecting institutions. If he lacks that experience, it will be economical to send him at the expense of the committee to study similar institutions. It is very desirable that he should accompany the committee in any visits that they may make, in order that they may receive concurrent impressions. There are hundreds of institutions in the United States that have been made showy and pretentious, in order to produce a monumental effect, while the provision for children and employees is inadequate. The architect should know how to secure beauty by

*See "Child Placing in Families," W. H. Slingerland, Ph.D., Russell Sage Foundation, New York.

he lines and proportions of the building, rather than by expensive carving and other elaborate decorations. He should know how to secure the maximum of space, conveniently arranged, with the minimum of waste space and expensive material."

First: The selection of the site is important, and before purchasing the same it should be studied from all angles. It is unfortunate that so many institutions, when contemplating building, call the architect in for advice after the purchase of a site. Then, too, if the grounds are to be used for agricultural purposes the advice of an expert agriculturalist should be sought. But principally the site should be selected for its general healthfulness, which includes adequate sunlight, water supply, drainage, etc. The question of railroad facilities, which involves the shipment of fuel and its handling, is an item of no little consequence. Locations that are remote and inaccessible are not conducive to keeping good employees.

Second: The general scheme of the whole plan can be well worked out only after such questions as the following have been settled: What is the number to be maintained in a cottage and the total number to be cared for? Shall there be a general dining room for all the children or shall the cooking and the feeding be done separately in each of the cottage units? Shall the children receive their school training at the institution or shall they go to the public school? Shall there be a central laundry building or shall there be special provision made for the instruction of girls in the laundry work? Shall the institution maintain an industrial training school? What method of heating will be used? Where will the institution get its water, and will it be pure water? Shall the institution have its own electric light plant or shall it obtain it from some public service company? What method will be employed for the disposal of sewerage? Shall there be a special building devoted to recreation? Shall the bread baking be done in a separate building or in the kitchens of the cottages? Shall there be a separate chapel building? Shall there be an assembly room? Shall there be a building housing the offices of the superintendent and other officers of the institution? What other departments shall it contain? What quarters shall be provided for the employees?

Whatever the commission is, let the final plan, with reference to conveniences, such as the kitchen

arrangements, bedrooms, plumbing, heating, etc., spell efficiency from every angle. If this is true, the scheme is bound to be good architecturally, for after all this is one of the fundamental principles of good designing. I dwell on this particular side of the question because in my visits to various institutions through the country I found many buildings where the architect was not given sufficient information to enable him to give the owners the best results.

This article is intended to discuss, particularly, the orphanage for care of normal dependent children, from early childhood and up to the time when they can be sent out in the world to make their own way. No particular discussion will be brought out with reference to methods of schooling or planning of the same. This is an important consideration, but is too lengthy a discussion for this article. The general scheme of schooling should be thoroughly worked

out, as it is sure to have an important bearing on the details of planning. For instance, if the children go to a public school where the hours might be long, and location some distance away, the preparation of meals by children in the cottages might be impossible, and a central dining room be used. Time is an important factor in the lives of these children. A fine example of clock-like regularity and utilization of time has been worked out at the Hebrew Sheltering Guardian Society, Pleasantville, N. Y. This place maintains its own educational system and the children's school hours are fitted in to carry

on domestic training to an efficient degree.

COTTAGES. — Let us take for example a cottage and its requirements for the housing of fifteen to thirty children, ranging in age from five or six up to eighteen to twenty-one years, either boys or girls; if the funds in hand are sufficient, a cottage having bedrooms for the accommodation of one, three and five beds each, is nearing the ideal for handling the children. This arrangement works well by placing the younger children in the bedrooms accommodating five beds, the next group in the rooms accommodating three beds, and lastly, the oldest in the single bedrooms. In some cases two older and sometimes the younger ones can be housed in a room of two beds, but this is not generally accepted, although oftentimes in cottage groups two children can be found who are trustworthy. Some institution managers

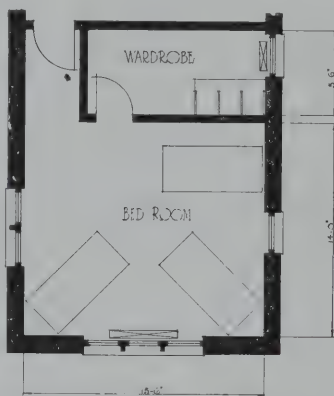


Fig. 1



Fig. 2

object seriously to having two in a room.

The bedrooms should be studied to give the maximum light, ventilation and sunshine for at least half the day. The beds should be properly placed to avoid draughts across the heads. The illustrations, Figs. 1 and 2, suggest a window arrangement and the location of beds. Ample space should be provided for making up the bed, also a chair for each child. Windows on two sides of the bedroom are almost indispensable, and to have them on three sides is much better. This applies to the

bedrooms of three and five-bed capacities. It is not a serious fault if the single bedrooms are lighted and ventilated from only one side. The bedrooms may be kept down in size if the small-sized single beds are used. These are made varying in size from 3 ft. x 4 ft. 6 in. to 3 ft. 6 in. x 6 ft. 6 in.

It will be found in planning an orphanage of this type, reducing the number in the sleeping rooms, that the bedroom floor plan spreads over quite an area and governs to a great extent the balance of the cottage unit. It is advisable to get good ventilation in these rooms, thereby making it possible to cut down the floor area.

Some states have laws governing the cubic contents of bedrooms for such places. As a minimum each child should have about 50 square feet of floor space, and not less than 500 cubic feet of air space. The New York law requires 600 cubic feet of air for each dormitory inmate in child-caring institutions.

A low ceiling height is not a fault but an economy, providing the ventilation is sufficient. It reduces the cost of construction, maintenance and heating.

In direct connection with the bedrooms should be placed a dressing or locker room. This room has many advantages, mainly providing a place in which the child can dress and undress, which is particularly desirable in cold weather. The dressing room can be kept warm, while bedrooms can be opened during the sleeping hours for an abundance of fresh air. This room may have a clothes locker, wall seat or a chair, for each child. These lockers may be fitted with doors, each child having its own key or a combination lock. The locker system, however, seems to be quite a little in disfavor among matrons of experience. It encourages petty thieving to a certain extent among the children. The best method the writer uses is the open locker or stall as shown in Fig. 3.

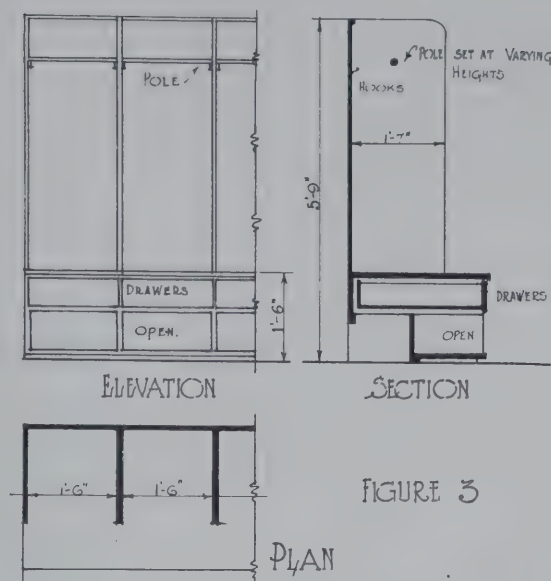


Fig. 3. Details of Wardrobe

The child's effects are hung in sight, insuring good ventilation and easy inspection by the cottage mother. Most superintendents prefer to have the child's toys and various other things they love, kept in lockers or pigeonholes in the play room or elsewhere, away from the bedrooms. Cottage matrons as a rule prefer to have the children forbidden in their bedrooms during the day. This applies particularly to the younger children, but not of course to the older group.

Instead of using the open stall locker some institutions provide a small

bureau or chiffonier for the child, which is placed in the bedroom or in a separate dressing room. A utility box is sometimes provided for each child at the foot of the bed; this serves as a seat and the chair can be dispensed with.

Some institutions have had to plan their cottages on a less expensive method of housing children. The cottages holding from twenty-five to thirty have two dormitories, holding twelve to fifteen beds each on opposite ends of the house, with the matron's bedroom between. At the other ends of the bedrooms were located the locker or dressing rooms and between these a good-sized toilet. This constituted in the main the second-floor plan.

The architect will find that in order to keep the house unit down to a practical working space and make it possible for a single cottage matron or mother to keep a proper watch on her children it will be better in a cottage housing twenty children, providing bedrooms of one, three and five-bed capacities, to have a few bedrooms, mostly single, on the third floor, together with small toilet arrangements. This number of beds provided on the second and third floors makes the required area for the first floor about right.

In working up the plan of a cottage housing eight, twelve or sixteen it is easier to imitate the home than in those of larger size. Cottages of such capacities are almost ideal, but of course much more costly to maintain per child.

Whatever the plan of the cottage may be, the matron's bedroom should be centrally located for the purposes of supervision. Some orphanages have a direct opening from the matron's bedroom to the dormitories, so that she is in close touch with all that is going on in the sleeping quarters.

The matron or cottage mother should be provided with a good-sized bedroom and clothes closet, and a

private bath should be in connection therewith. If the plan will allow, an extra bedroom directly connected is convenient in case of a child's illness where night care is necessary. Either a room of this type, or a door opening from the matron's bedroom into one of the bedrooms of three beds, might be used in this way. If a child is threatened with a contagious disease, the other beds in the room may be moved into one of the larger bedrooms temporarily until the child's disease is ascertained. Another scheme to take care of this emergency is to provide a large enough room for the matron to accommodate an extra single bed for a sick child.

A system to care for the linen, such as sheets, pillow cases, blankets, towels, face cloths, etc., should be carefully worked out. If these various articles are to be apportioned to each child, the linen closet or room should have a case of the proper size to take these various things, folded a certain way and studied out for the condensation of space. If this system is not used, cupboards or open shelving in a good sized, well lighted and ventilated linen room are sufficient. The shelves should be adjustable. In this latter case the room would be in charge of one or two of the older children. A laundry chute direct to an auxiliary laundry room in the basement may be built in to good purpose.

The toilet rooms should be located to give the best access from the bedrooms. A single toilet room containing showers, water closets, lavatories, etc., is preferable to several toilets placed in different parts of the bedroom floor — the matron can better supervise the children in the morning when the toilet room is being used to its capacity. In talking with one authority recently, the discussion of the number of various plumbing fixtures was taken up and he said "that for efficiency you should have an abundance of fixtures." It is the opinion of the writer that for a girl's cottage of thirty, the following is the minimum of fixtures: Four water closets, eight lavatories, three showers.

These fixtures are to be located on the bedroom floor. There should, however, be a toilet on the first floor for the use of the children when running in from play. There should, of course, be a private toilet for the matron on the first floor.

Some institutions provide a locker room in the basement or first floor. This room is furnished with locker or stall lockers in which the children hang their play clothes and shoes. The water closet (urinal for boys) and lavatories placed here are a great convenience. The children coming in from play or school before meal time can clean up on the first floor without going to the bedroom-floor toilet.

For a boys' cottage of thirty, the minimum number of fixtures may be the same except in the number of water closets, which might be reduced to three on the bedroom floor and a urinal substituted.

For cottages housing about twenty children the minimum number of fixtures, whether for boys or girls, might be about as follows: Three water closets, six lavatories, two showers.

Of course any number of fixtures in excess of these given will be found advantageous in the quickness of getting the children washed and dressed in the morning. In the cottage planned orphanage, where the children are doing most of the work around the home, such as sweeping, cleaning, bed making and cooking, it is a distinct advantage to provide everything for the dispatch of the work. A child living at an orphanage on this plan has a full day together with its schooling.

The most serviceable material is none too good for the partitioning of showers, water closets, baths, etc. Where children are being trained, especially boys, a material of great permanence should be used. Thin plaster partitions painted do very well in their proper place, but it is the writer's opinion, after visiting many orphanages, and paying particular attention to this detail, that marble, tile, terrazzo, or any other equally permanent material is the only thing to use. It is far cheaper in the end.

The floors of toilet rooms should be tile, marble, terrazzo or some other equally good permanent watertight material. There seems little argument against such materials where children are spilling water continually, and abusing the plumbing fixtures, thus causing more or less leaks. Permanent material for the floor is good insurance against stained ceilings below, especially in the case of framed floors. It is well to have floors of toilets pitched slightly to a floor drain, to take care of accidental leaks, and also for convenience in cleaning.

The water closets should be given the best attention when being selected. The flush valve closet with the valve concealed or a tank type of flushing concealed is no doubt the best. The wall hung type of closet is an excellent fixture, a little more costly than some of the other types, but is most sanitary. The closet seat will be abused more than any part of any fixture in the house, therefore use the strongest and best obtainable. From observation, wood-finished seats do not give the best results unless they are the sanitary open-front type. These are good but if used the closet should have a lip on the bowl. There are a number of excellent seats on the market, of wood cores, composition covered. These are sanitary, most of them acid proof, are more easily kept from getting foul, and are unbreakable.

The heads of various orphanages differ in their opinions about doors to water closet enclosures. Some think the doors are a detriment, while others believe them essential, stating the child should be taught modesty from the start. This is a problem that is solved in various ways. Probably no better method is to be found than to have doors which

might be the usual type of short door, on spring hinges, the bottom of which is kept up some sixteen or eighteen inches above the floor or at the height of the child's knee, this depending on the size of the child using the fixtures.

The baths for children above the ages of eight or nine years, and in cases younger, may be showers, a liberal number of which is of great advantage. The showers may be of the enclosed type or a series of wall showers in one large room. The enclosed type with a small dressing space adjacent is generally recommended for institutional practice.

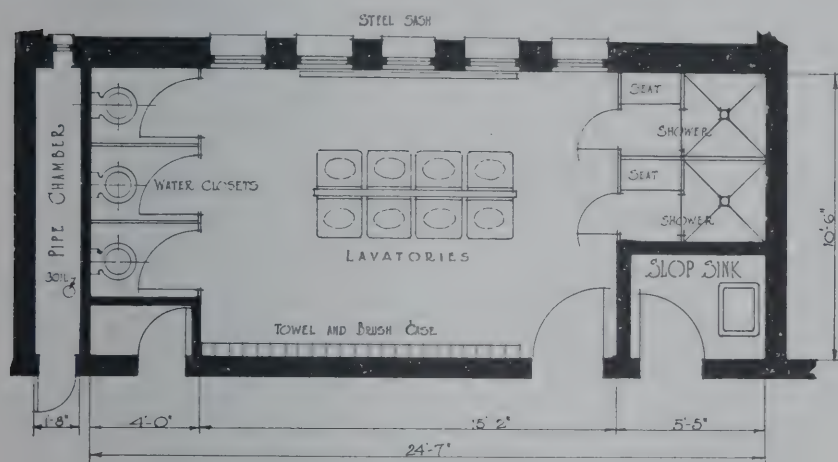


Fig. 4. Practical Arrangement of Toilet Fixtures

The shower for boys may be an overhead or side type of shower. If an overhead type, it should be low down, as a high shower might have too much force for a child's head. For girls' use the side shower is preferable.

It is important to have the shower control well placed, that is, at the side of the entrance. The control valve should by all means be an anti-scalding valve. When the valve is placed at the entrance, the child can test the temperature of the water before bathing. A curtain of white linen or other washable material at the shower enclosure is desirable. It is light and easily washed and hung on nickel-plated rings.

The bathtubs should be few in number. These are used generally for bathing the youngest children, or for any of the children who prefer the tub. The matron usually has charge of bathing the younger children, and it is well to raise the tubs so that the rim stands about three feet above the floor. This will make it much easier for the matron, as her position can be more erect. These tubs may be placed in a separate bathroom or in the general toilet room.

The lavatories if placed in the center, or at least away from the walls, will be found very convenient from the standpoint of sanitation. The grouping of the various connections facilitates repairs, cleaning, and eliminates the possibility of vermin, such as

occurs sometimes at wall-hung lavatories. There are a number of types of lavatories on the market, having the cast-iron leg enamelled, which are very substantial.

Another good method for grouping of lavatories is shown in Fig. 4, which is a suggested toilet room arrangement. The floors are of terrazzo and the same material is brought up to form a wall on which the lavatories are hung, the height of same above the floor varied to suit the heights of the children. The water supply and the waste are carried through this wall longitudinally with proper drain and at the ends

are located shut-offs for the water supplies on each side, and also clean-outs for the run of waste. The matter of shut-offs and clean-outs is of great importance, as children are careless in their use of fixtures. The waste clean-out should be given particular attention in the girls' cottages, for they are frequently stopped up from hair being washed down. This is by no means deliberate on the part of the girls but is a natural consequence from the use of the lavatory. The lavatories should be fitted with easy spring self-closing faucets of a high-grade quality. Children are careless about letting water run and often neglect to shut it off when bowl is full.

Slop sinks conveniently located on each floor are indispensable. A closet of good size, large enough to hold several brooms, dust mops, cloths, etc., together with the slop sink, will be found a great convenience. If the floor is of concrete, tile or some other permanent material, it will prevent its becoming foul from the dampness of the cleaning rags, mops, etc.

Drinking fountains are a convenient accessory. One should be located on the first or ground floor, for the children when running in from play. Another should be on each of the bedroom floors, centrally located with reference to the bedrooms, as most children are thirsty at bedtime and during the middle of the night. An abundance of drinking fountains around the institution conveniently located will be an inducement for the children to drink more water, an essential to good health.

Some provision should be made for the toilet articles belonging to each child, such as hair brush, comb, tooth brush, soap dish, drinking tumbler (aluminum), face cloth and towels. These should each be given an individual compartment of some sort. The towels and face cloths should hang apart from each other to prevent the spreading of any skin disease that a child might contract.

The compartments for these articles should be so designed as to provide good air circulation. In conversation with a physician connected with a chil-

dren's home recently, he suggested that all such articles be hung in a place where they would be subjected to sunshine during a part of the day, for as he said: "Sunshine is the best disinfectant in the world." This would be quite ideal, but is rather difficult to work out in the plan.

KITCHEN ACCESSORIES AND PLUMBING.—Probably no part of the cottage plays so important a part in the education and training of the child as does the kitchen (this is especially true of the girls). Every kitchen is a school in itself. Where the cottage system eliminates the servant, the child consequently is given a regular, responsible, domestic training. A well equipped and conveniently planned kitchen and pantries are a great asset, not only for the teaching of the child, but for the quick preparation and ending of the work in connection with meals.

A kitchen planned on the buffet type or with cupboards in the pantry are both good. In the design of work tops, tables, etc., the architect should keep in mind that all heights should be reduced somewhat from those ordinarily provided for adults. Drawers, cupboards, bins, etc., all worked out in detail for the placing of kitchen utensils, aid in the training of the child. "A place for everything and everything in its place," is an expression well applied to a kitchen where children are trained in the science of cooking.

Bread being the chief article of diet for children, an item of importance in the pantry is a well designed bread cupboard, air and dust tight, and with provision for proper ventilation to regulate the humidity. It should be metal lined, and have metal shelves, which are removable so that it may be washed and scalded. The bread cupboards should be properly proportioned to hold enough bread for a two days' supply. A cake cupboard of the same construction will be found useful, but should be of smaller proportions. A cutting board or ledge top should be provided near by for the cutting of bread and cake.

A cooler for "leftovers" (in the language of the housewife) may be built in to match the balance of the cupboards of the kitchen or pantry, and should be located on the cool side of the house and properly insulated. A vent should be provided at top and bottom and properly screened. The inside dimensions may be about sixteen inches square with some five or six adjustable shelves inside after the manner of the house refrigerators. The shelves should be of perforated metal, wood slats, or wire, all capable of being removed for cleaning. Some of the various

manufacturers of refrigerators provide heavily tinned wire shelves on order, to fit such coolers, that are a distinct advantage because of their durability and the chance for air circulation around the food.

The range, if it burns either coal or wood, is better to be "bricked in" with a ventilating hood overhead. Fireproof floor material around the range is a safeguard where children do the work; the removal of hot ashes has its dangers. A metal ash chute to the basement would be advantageous. If electricity at a reasonable rate is available, the electric range will be found far superior.

A table in the kitchen, of proper proportions, with large wheel casters will be used constantly for the placing of dishes removed from the dining tables, and for the serving of prepared food. A favorite material for the tops of such tables, work tops, over cupboards, etc., is birch. Left in the white, it is easily scrubbed and kept clean. The use of linoleum of some light solid color on

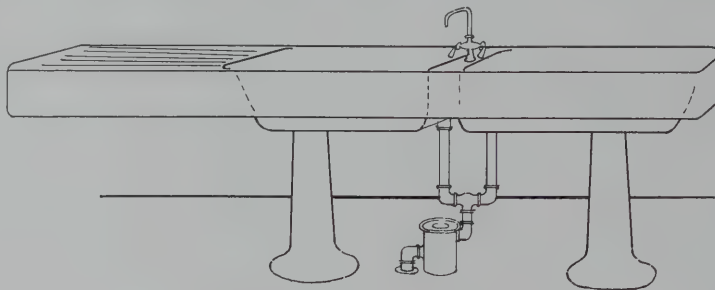


Fig. 5. Dishwashing Sink

the tops of tables, work ledges, etc., will be found very satisfactory. It is impervious to moisture, cannot be stained with grease, oils or hot pans and is easily cleaned.

The kitchen floor is always an important detail. A good grade of linoleum seems hard to excel. Where the building is of fire-resisting construction, the ideal (if linoleum is used) is to cement it to the smooth trowel finish of the floor slab. A base of some permanent material in conjunction with the linoleum and a cove at the junction make an easily cleaned angle.

A vegetable sink and potato peeler for the kitchen will be found great time savers. The vegetable sink will be found particularly useful if vegetables are brought in fresh from the garden. These usually have a great deal of dirt to wash off, and a sink with a generous clean-out in the trap will be necessary. The potato peeler (rotary type) will pay for itself in a short while. It is found in institutions where children do vegetable peeling, that they waste a large percentage of the vegetables in the peeling unless carefully watched.

In planning the kitchen, it is well for the architect to keep in mind that there will be at least twenty-five per cent of the children preparing a meal at one time, and it is essential to have the kitchen well studied out for ease of serving, and good floor circulation around and in front of all fixtures.

The house should have a refrigerator, the size depending on the capacity of the cottage. Any of

the various types on the market will be found satisfactory. The "built in" type is of course better, for it eliminates the open space underneath, and usually has a permanent plumbing connection. If the drain is connected to the plumbing permanently it should be arranged without a trap and run to some basement floor drain for cleaning out. The steady, slow drip of melting ice forms a thick clot of scum in most refrigerator drains and this must be cleaned out often.

The ice capacity of the refrigerator should be from one hundred to two hundred pounds, depending on the method of ice supply and the size of the cottage. For a cottage of twenty children, a refrigerator of about one hundred and fifty pounds ice capacity and a capacity of twenty-five to thirty cubic feet in the food storage compartment will be found adequate. The door for icing, whether the refrigerator is "built in" or not, should be kept low because the icing may be done by boys who cannot lift as high as an adult.

The sink for dishwashing and general use is the most important accessory in the kitchen. It should be a sink to allow at least three or four to work together at one time. This is important in washing dishes. The writer believes that a sink placed away from the wall so as to be accessible from both sides is an improvement over any type of wall sink. The washing of dishes in a children's institution takes a great deal of time, and the more children put on the work the quicker it is finished. A sink especially designed with two compartments and made of sheet

metal, preferably copper or zinc or, better still, enameled iron, each compartment having its hot and cold water supply, should be made six to eight inches deep and have a drain board of good length at one end. This allows one child on each side to wash dishes, and as many as three standing on each side drying. The accompanying illustration, Fig. 5, is a suggestion for this type of sink.

The kitchen should be well ventilated by generous windows from at least two sides and ventilation from three sides is preferable.

The matron should be provided with a private sitting room. This should be made as pleasant as possible and so situated that she can see to advantage the grounds in front of the cottage. Her private toilet and a coat closet could be in connection therewith. It is almost necessary to have a door from this room leading directly into the living room, so that she may observe the actions of the children. The room would also be well placed if it were near the front entrance to facilitate the answering of front door calls.

SEWING ROOM. — In the girls' cottages particular attention should be given to a sewing room, well lighted and large enough to hold several girls. In these cottages the girls will most likely be given a good deal of instruction in sewing, unless it is done in another way, possibly at the school maintained by the institution. There should also be provided a sewing room in the boys' cottages for the use of the seamstress and matron in mending.



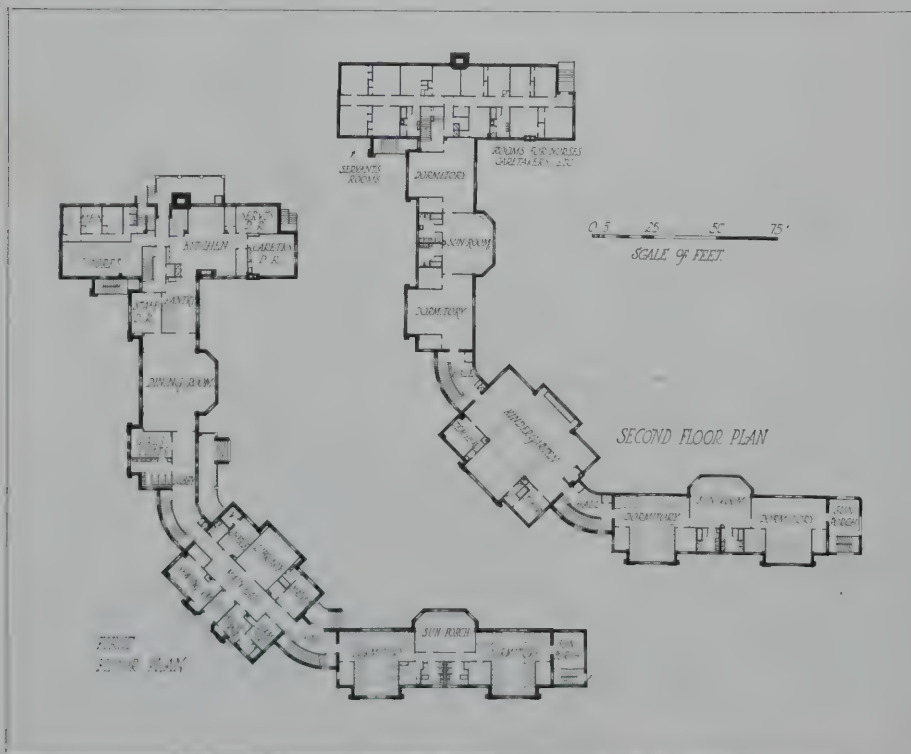
Rear View of Chicago Nursery and Half Orphanage Asylum, Chicago, Ill.
Holabird & Roche, Architects

Chicago Nursery and Half Orphanage Asylum, Chicago, Illinois

HOLABIRD & ROCHE, ARCHITECTS



General View of Street Fronts



THIS building, though not of the cottage type considered in the previous article, approaches the desirable results of that type through its well conceived plan. It is fortunate in having a generous plot enabling the building to be disposed so as to take full advantage of all possible sunlight and also good natural ventilation, because the depth of all portions is kept at a maximum of two rooms. A special feature of the plan is the combination of dormitories with sleeping or sun porches, and the mingling of single rooms for attendants other than those in the caretaker's wing. The entire group includes a separate heating plant and a cottage infirmary with isolation wards for both boys and girls.

The Promotion and Financing of Building Operations

A BRIEF CONSIDERATION OF ACCEPTED METHODS AND THEIR CONNECTION WITH ARCHITECTURAL PRACTICE

By CHARLES A. WHITTEMORE

AMONG the multifarious duties of an architect that of financial expert and adviser frequently is of not the least importance. This is attributable, undoubtedly, to the fact that so many real estate operators who are undertaking projects of considerable size realize that an architect is not only competent to plan and construct the building but many times is able to give good, sound, practical advice on the subject of financing. Frequently, also, through his clients or acquaintances the architect is able to establish a financial relation between the prospective owner and some financier or underwriting medium which makes the consummation of the project possible.

That financing is one phase of the ever increasing obligations of the architectural profession is evidenced in many ways. Various societies of architects have sought to instruct the laity as to the qualifications of an architect as well as the character of his services, and have included "financing" in the list of activities which are a measure of real ability and an indication of the broad scope of requirements of the profession.

A well trained architect, as has been intimated so many times, is not merely a maker of pretty pictures and a fanciful schemer. He is a man with a logical mind, of vivid and active imagination, a competent executive and administrator, with ability to handle men. His training so quickens his perceptions that he is able to see in a preliminary scheme an accurate view of the completed project. His familiarity with big business and with large developments is productive of a real "money sense." He knows the value of money and knows how to value it not alone for its purchasing power but also for its potential power. Unfortunately, however, not all the members of the architectural profession can measure up to this standard. Some of the architects of the country have not had opportunities to become thoroughly familiar with the problems of finance and promotion operations. The coming years will undoubtedly develop many situations in which an architect's ability to assist in financing various problems will be called upon in a greater degree than ever before. It, therefore, seems wise to put down a few of the cardinal principles and a few of the usual forms of financial undertakings which are more or less directly connected with architectural problems.

It is not with the idea of preparing a "financial primer" nor with the idea of presenting facts which may be entirely new that these words are written. It is primarily for the purpose of calling once more to mind certain phases of one of the most important, but least understood, functions of the architect.

Familiarity with financing methods is important. As a latent power it may be classed with a knowledge of "graphical statics" or calculus. It may not be called into direct action, but if the call comes and the response is intelligent the effect cannot be otherwise than a distinct help, not to the individual alone, but to the whole profession.

A diversified knowledge is a component part of a liberal architectural education. The eyes of the world will inevitably turn to the architects for help in many enterprises, which now are conducted through other channels, as soon as the extent of the ability of the profession is realized. It is lamentable, though true, that many architects are "hazy" even on the subject of the simple first mortgage.

There is probably no one in the profession who is not familiar to a degree with the financial questions involved in the construction of the modern small house, but it is a fact that many architects would be somewhat at a loss to take the most direct and shortest steps to approach even the placing of a first mortgage.

Mortgages are nothing more nor less than promissory notes and in some states the generally accepted term is "mortgage note." A mortgage is simply a statement or conveyance on the part of the owner of record of a piece of property that because of money advanced, the deed and title to land or building are offered as an assurance that the borrower will pay the full value of the loan with interest at fixed intervals, or at a specified time on demand. Usually the mortgage is for a term of years and is subject to renewal at the option of the mortgagor. In case of non-payment the mortgage may be foreclosed and the title to the property passes to the mortgagor.

When a first mortgage is to be obtained from a bank an application must first be filed. This is turned over to the finance or investment committee of the bank and an examination of the property is made by them. This committee reports to the directors of the bank, who may pass or decline to place a mortgage on the property in question. The bank in conducting an examination of the property also looks up the deed to see that there are no prior encumbrances and that the title is clear. If the mortgagee has had the title examined and guaranteed by the Land Court a further examination by the bank is not necessary.

First mortgages are usually based on sixty per cent of the value of the property (land and buildings) although sometimes a greater amount is accepted if the security is exceptionally good.

The first mortgage is not the limit of liability on a piece of property. Second mortgages are common

in large undertakings and even in the financing of a small house. Third and fourth mortgages are also occasionally recorded, but are not so frequently encountered on small operations except under stress of financial need.

It is obvious that the greater the number of mortgages on a piece of property the less the owner's equity. The mortgagors, after the first mortgage has been placed, become practically endorsors of the note on the first mortgage. In other words, they also assure the holder of first mortgage that the loan will be repaid with interest. The holder of the first mortgage has the first claim on the property and in case of foreclosure the holders of other mortgages in order to protect themselves must either bid in the property or must arrange that the portion of the principle demanded with interest be advanced. If such advance is not made and the price realized on the foreclosure sale is not sufficient to cover more than the first mortgage, then the second mortgage and subsequent mortgages become valueless.

Frequently second mortgages are purchased on property as a tentative ownership because the holder of the second mortgage is really placed in the position of owner, as has been outlined above. In many building operations on a small scale second mortgages are taken in payment of contractors' bills. For example, if the land be worth \$1200 and the house costs \$6000, a first mortgage of \$4320 or sixty per cent may be advanced by a bank or private individual. The contractor, in settlement of his account, may take a note or second mortgage on the property for a part of his balance due. Very frequently in buying a piece of property on which a first mortgage is placed the purchaser will assume the obligations of the first mortgage, make a partial payment of the balance, and the former owner take back the difference between the cash paid and the cash due in the form of second mortgage.

The second mortgage is also used to conceal ownership. For instance, in a large real estate transaction where the real owner wishes to remain out of record, the title to the property may pass to a "straw man," a clerk or a broker whose business it is to fulfill this particular office. His name will appear on the records as owner, he may be the mortgagee on the first mortgage, but in order to finance the operation he simultaneously issues a second mortgage to him who is the real but hidden owner. Such a piece of property cannot be transferred without the consent of the holder of the mortgages. The accounts of real estate transactions all contain many instances of this type of operation. It is a fact that one of the largest owners on record in a certain city, and one who nominally pays a property tax well along towards the top of the list, is a lawyer of no large means.

Second mortgages are frequently used in cases of direct fraudulent intent. The *modus operandi* is

simple, although at times disastrous to the holder of the first mortgage and to insurance companies.

A discussion of this phase of financing might be of interest but would not be of value at this time. Architects as a rule do not figure in these transactions first, because of the questionable practice, and second, because the "trick" is turned only in instances of relatively small operations.

First mortgages on real estate are given by savings banks, coöperative banks, trust companies, life insurance companies and frequently by private banking corporations or private individuals. The coöperative bank form of financing the small house is generally satisfactory, as the payments are made in small amounts and over a longer period than in other bank mortgages.

A coöperative bank issues shares which bear an interest rate according to the bank earnings. These shares are issued in \$1 to \$25 units. The shares theoretically mature in twelve years, but if the bank earnings are good the maturing period is shortened. When the coöperative bank issues a loan against a projected building, shares are issued in an equal amount, the loan becoming a lien against the shares. When shares mature the loan is cancelled. The interest on the loan must be paid monthly with the regular share payment.

By this method the mortgagee is in a position to reduce the mortgage gradually without any large payments. Many homes have been financed in this way which could have been possible in no other manner except with considerable difficulty.

First mortgages placed other than through coöperative banks are usually issued for a period not exceeding five years and are then callable or may be renewed at the pleasure of the mortgagor. Banks usually will renew a mortgage, or rather issue a new one on expiration provided a portion of the principle has been paid and provided the property has not depreciated to any considerable extent.

The underlying principles of first and second mortgages are the same as the underlying principles of financing on larger schemes. The first mortgage, for example, is analogous to the bonds issued on a large transaction and the second mortgage may be compared with the preferred stock.

The subject of bonds and stocks is complex and one which can be thoroughly understood only after considerable study. There are many varieties of bonds, some of which the average architect would never be interested in so far as the financing or promotion of his projects are concerned. Such bonds are more in the nature of public service, railroad or industrial bonds of a different character than original financing.

The bonds customarily dealt with in the building and real estate operations are roughly divided into two classes, term or optional bonds and serial bonds,

the difference lying in the fact that the term bonds are in force for a definite period of years, but may be retired at a premium rate established in the agreement, usually after a fixed interval, as after one year. Serial bonds are divided into classes or series which must be retired as a whole at certain specified times.

It may be worth while to note that the average investor in bonds prefers bonds of a twenty to thirty-year term on real estate promotion. These investors usually are bankers or trustees of large estates, or individuals having faith in the project and considerable available money.

The disposition of bonds is not the most difficult part of the financing because these bonds, if the security is good, are usually underwritten by a banker or broker, who in turn sells to the individual investor.

The second mortgage or preferred stock is usually the most difficult to place, although if business conditions at large are in good shape and money is plentiful with no extravagant rates of interest, preferred stock in good enterprises is an exceedingly safe investment. The common stock usually represents the bonus as added incentive to the preferred stockholders and also the remuneration to the promoters. In many instances in large financing the common stock is given to preferred stockholders in the proportion of one share of common free with every block of two shares of preferred purchased. It is also quite customary for the real estate operator, the contractor, the architect and others interested in the operation, to accept some common stock as part payment for their services.

Usually the common stock represents the voting power of the corporation or trust. The subject of voting power is so varied that a complete discussion would be out of place in an article of this character. Sufficient to say that the common stock is the source of the larger returns if business is good and therefore should have general control of the personnel of the organization.

The income from the preferred stock is always guaranteed at a fixed percentage and is frequently set at seven per cent, which makes an attractive return on money invested. The common stock has no guaranteed income, as it derives its return from the net earnings of the operation.

In connection with the financing of building operations there are many items to be carefully considered. The expense of underwriting the bonds, the discount for placing the preferred stock, the interest on both bonds and stock and other fixed and carrying charges all must be capitalized as well as the cost of land and building. The taxes, insurance during construction, trustees' fees, brokerage commission are also as much a part of the total cost as are plumbing fixtures and electric wiring. It is imperative that these items be also capitalized.

In determining the amount of money available

an itemized list showing all the expense factors should be made up. As an illustration we may assume a building to be built and investigate the balance sheet such as would be prepared for promotion purposes.

A real estate operator has in mind a parcel of land in a location which he thinks desirable for an apartment house with an opportunity for some attractive stores in the first floor, — such an operation is feasible in certain locations, particularly if the possibility of later change to an office building be kept in mind.

The real estate operator asks an architect to prepare sketches and a financial statement. The project is to be kept within a limit as near \$500,000 as will be feasible and still show a good return.

The architect would then prepare a statement similar to the following:

Land	\$125,000
Building, including architect's fees	280,000
Bond interest	13,500
Stock dividends	11,000
Bond discount 5%	15,000
Stock discount 15%	30,000
Trustees' fees	3,000
Taxes and insurance	3,000
Promotion charges and incidentals	19,500
	\$500,000

It is assumed in this case that the bonds may be floated on the basis of security of investment and increase in land value to the amount of \$300,000. This is not an extraordinary loan on a proposition of this character, although it is not so frequently encountered as a loan of 60% to 70%, as has previously been noted. Inasmuch, however, as the figures used in this statement are actual figures used in connection with a real development rather than a purely hypothetical statement, the exact basis of percentage of bond issue will be taken rather than the 60% or 70%. The bond issue was \$300,000, the preferred stock issue was \$200,000 and the common stock issue was \$150,000. This common stock was given one share with every five shares of preferred stock.

In the above statement it will be noted that the bonds are estimated as bearing interest at 4½%, while the preferred stock is estimated as bearing interest at 5½%. The bonds also have been underwritten at a discount of 5% from their par value, making a broker's price on the stock 95. The brokers would of course obtain their profit in the transaction by selling these bonds at, say, 97. The preferred stock is underwritten at 85 instead of par value 100, with the idea that the brokerage commission would be obtained in selling the stock at a higher valuation, probably at par.

Another item in the statement above is that of promotion charges. This would include the brokerage commission on the sale of the land and a small bro-

kerage commission for securing the underwriting of the stock although, as has been noted, the actual profit to the underwriters has not been estimated in the promotion charges.

One question which will undoubtedly immediately occur to those unfamiliar with this form of financing is how the amount of bonds and stocks to be issued is determined. This item depends entirely on the capitalization, for example, if the total capitalization were assumed to be \$600,000, the bonds probably would be issued in amount of \$400,000 and the stock on the basis of \$200,000.

It will also be noted that the common stock in this particular operation was not figured in as part of the capitalization, but represents a bonus or a treasury stock which can be sold in case of a contingency arising increasing the cost beyond the original amount of capitalization.

After having determined the amount of capitalization necessary the bond and stock issues are worked out, the interests and discounts are computed and the other items of expense estimated. If the total sum of these items exceeds the amount originally set aside for capitalization (in this case \$500,000) then the bond or stock issue is increased or the other expenses in some manner decreased. It is obviously a question of "trial and error" until a balance is had.

The next step in the computation of the operation is an examination of the income. In this particular case we assume eight stores of a high class in the first floor of the building. We assume that these eight stores would be rented at a fair rental, say approximately \$4.50 per foot. This price per foot is low, but in promotion enterprises all items of expense should be figured conservatively high and items of income figured conservatively low. We assume that the average annual rental of these stores would be \$3000 apiece.

There are also in this building nine floors of apartments with nine apartments on each floor, making a total of eighty-one suites. These suites vary in size and the average income would be \$700 per year. The income statement would be as follows:

Income 8 stores at \$3000	\$24,000
9 floors, 81 suites at \$700	56,700

Or a total income of \$80,700

These items of course are checked up by the real estate operator because of the knowledge of land valuations, demands for stores, possible development of the neighborhood and character of the surrounding business and apartment buildings. If the developments in the vicinity are tending in the direction of better-class houses the income will obviously increase and in the years after the operation has been completed and the building occupied, the income sheet will show a larger rent return than that considered likely under the promotion estimate.

Under the expense account must be included all the heat, light, water, elevators, janitor service and all of the other items which enter into the operation of a building of this character. Also there must be included the annual interest on bonds and stocks, the trustees' fees, insurance, taxes and a sinking fund. After these items are totaled the difference between the total expense and total income represents the item which may be set aside for common stock dividends or purchase of preferred stock.

In the case of a development such as a hotel the preferred stock usually is, as has been already explained, the stock representing the ownership of the property. This stock is obviously desirable on the part of the hotel proprietor if he is thoroughly confident of the future of the operation. Many times, therefore, in financing hotel operations the clause is made in the agreement that no dividends are paid on the common stock until a certain proportion of the preferred stock has been retired. The financing of a hotel is so different from the financing of apartment houses that it is not desirable at the present time to go further into this phase of the situation.

The expense sheet of the apartment house previously referred to would be as follows:

EXPENSE AND MAINTENANCE*

Heat	
Light	
Water	
Elevators	
Janitor	
Vacancies	
Renting	
Repairs	
Depreciation	
Sundries	
Interest bonds 4½%	13,500
Interest stock 5½%	11,000
Trustees	5,000
Insurance	3,000
Retiring bonds	7,000
	\$71,780
Common stock dividends	8,920
	\$80,700

The bonds are usually retired by the establishment of a sinking fund on a 2% or 2½% basis, that is, 2% of the value of the bonds issued is set aside every year to accumulate interest for the purpose of discharging the first mortgage obligation. This item is important but, however, is frequently overlooked in financing work. Usually the financing agreement contains a clause as to the retirement of the bonds by application of the proceeds of the sinking fund in whole or in part. This reduces the first mortgage obligation and increases the value of the common stock in that the surplus is increased

because of the lesser interest to be paid on bonds.

It is frequently estimated that after a period of five years the common stock begins to have a far better interest bearing rate than the guaranteed interest of the bonds or the preferred stock.

It may also be well to explain the item of trustees' fees. This occurs both in the capitalization and in the expense. The trustees of the corporation or real estate trust conducting the operation are the men on whom the burden of the whole proposition falls during the period of construction. They are the ones to look out for the proper placing of bonds and stock and for the making of various contracts, leases, etc. Therefore, during the period of construction their expenses become an item of expense of construction, so that their charges must be capitalized.

After the building has been completed and occupied the trustees theoretically operate the real estate. They arrange for collection of rents, renewal of leases, for maintenance of building, etc., and at this period their charge becomes a part of the operation expenses.

It has been demonstrated by careful analysis of many buildings that the average expense outside of the bond and stock interests, the sinking fund and the trustees' fees, usually averages about 40% of the gross income. It is, therefore, customary in making up a statement to assume this figure. If the property

is desirable, well constructed and rents well, the possibility of vacancies and depreciation will be decreased, but these items should be considered carefully and included in any expense account as covering contingencies which may arise.

The financial statement presented above is of one type of finance. This same general method is applicable to almost any kind of building, but with each different kind of construction such as theater, hotel and special enterprises there are also variations in the form of bonds and stocks issued as has been previously noted, and it will require a later paper for their consideration.

For the present, it is sufficient to call to the attention of the architectural profession the few items which have here been produced, not with the idea of instructing men in something that they do not already know, but with the purpose of bringing more clearly to mind the fact that as time goes on the practice of architecture becomes more and more complex and various problems are continually introduced which have not previously been encountered.

It is important, therefore, that architects should be awake to the possibility of securing proper recognition of their abilities and that the bankers, brokers and real estate operators should have a feeling of confidence in the architect's ability to correctly interpret the financial needs of an operation.



Dining Room in the House of Mrs. J. E. S. Hadden, Westbury, Long Island, N. Y.
Peabody, Wilson & Brown, Architects

Notes on Price Movements in the Building Industry

NO ANALYSIS of the price reactions since the signing of the armistice can be of any material value if the prices alone are considered. The prices of building materials have changed in many cases; some have seen a downward revision while some have seen a slight up-swing.

A comparative table of costs as of last fall and the present time would be so deceptive as to be dangerously misleading. If, however, we examine the general industrial conditions we find an almost universal optimism.

The consensus of opinion is that building will be brisk, that work will be plenty, and that prosperity hitherto unknown is knocking at our gates. There is a very general feeling that the transition to normal business conditions may be consummated without either a sudden drop in price level or a lower wage scale. If every one waits for lower prices, if every one insists on the same margin of profit as of recent years, if all architects and investors, bankers and contractors are pessimistic and slow in getting into action, then and then only will building be depressed, and the labor situation present tangible difficulties.

If the labor market can be stabilized and if the scale of wages which prevailed in 1918 can be used as a basis of estimate for the immediate future, a tremendous volume of new construction will flood the market and tax the ability of the manufacturers to produce the various building materials in time.

All prices involve a labor item. If this item be the unknown quantity, and contractors have no assurance of the continuity of any wage scale, prices are sure to indicate a probable rise rather than a decline.

Bids received on a number of buildings for the Government have exceeded appropriations by from 10% to 80%. This reflects the tendency on the part of the contractors to forecast higher prices for labor, especially where the contract is on the guaranteed amount basis. It is true that the appropriations were on a pre-war basis, but that in itself should not account for such a high overrun.

Many materials suffering from war restrictions, such as tile, clay products, terra cotta, brick, etc., probably will not show any appreciable price reductions until sufficient demand has been created to warrant resumption of former manufacturing capacity. During the war the demand for these articles, aside from the Government demand, has been little, if any, and as a result plants have depreciated and organizations become disrupted.

The lumber market has been firm and prices have as yet shown no decline. A drop may not be expected for some months. It is not certain, however, that contractors in estimating on construction will not quote prices lower than the market.

In the plumbing market it is interesting to note

that fixtures have dropped 15%, brass pipe 10c per pound, brass fittings 10%, iron pipe 10 to 20%. These prices reflect a possible further discount for actual business. The drop is taken from the peak price of 1918.

In the field of heating and ventilating we find the following reductions on principal items: boilers 25%, radiators 25%, sheet metal 25%, iron pipe 7½%. Pipe covering dropped and rose again, due to an unprecedented volume of alteration work which is not ordinarily expected at this time of the year.

Electrical contractors have had reductions in wire 25%, conduit (carload lots) 5%, but other fittings, switches, etc., maintain the old prices. Estimates on construction work indicate a strong possibility of further reductions in the near future.

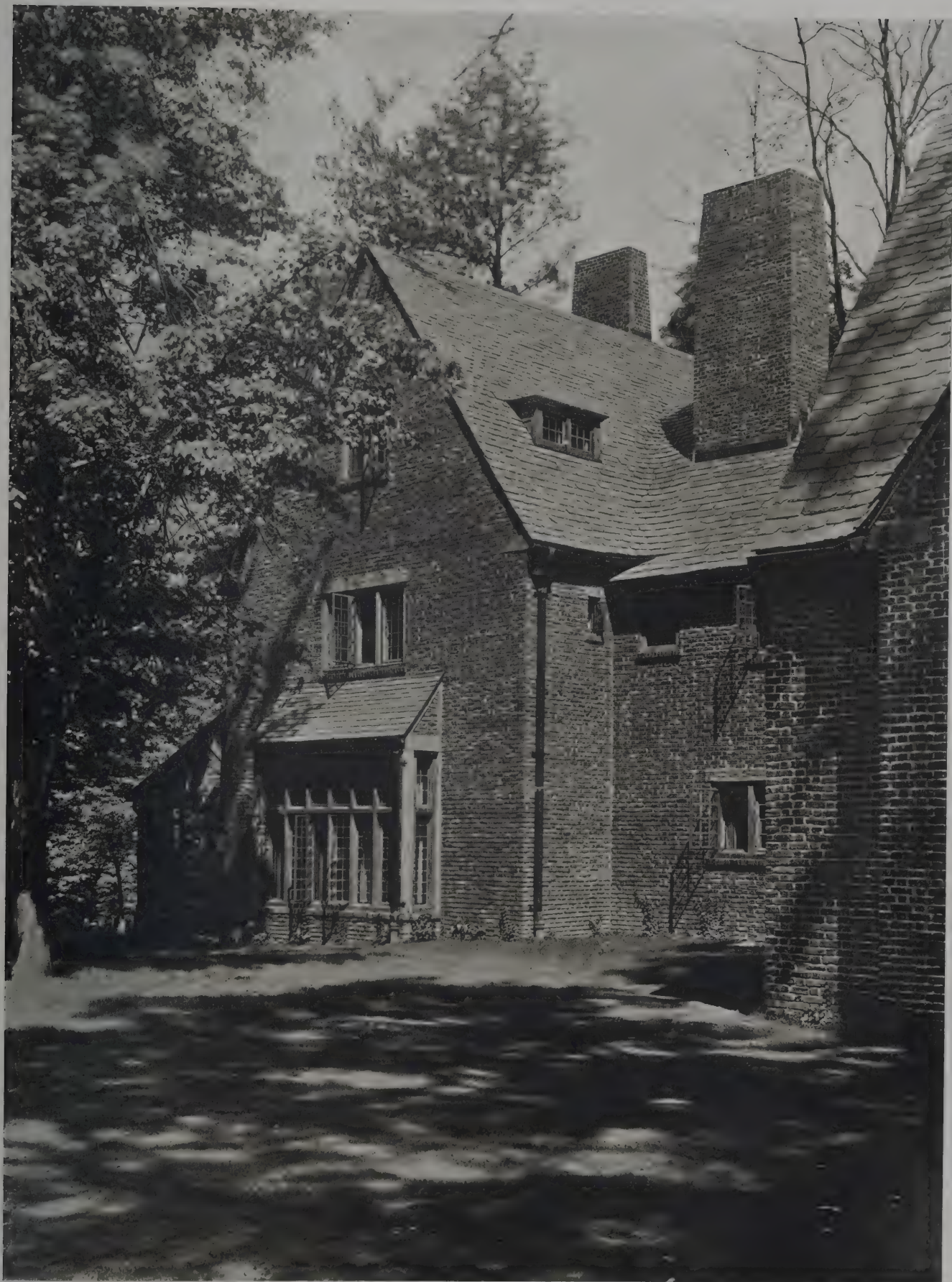
Masons' supplies have shown no general reductions, although cement has dropped from a peak price of \$4.40 to \$3.55.

Steel has dropped from 20% to 40%, while iron is holding firmly at the old 1918 rate. In general the tone has been one of firm optimism with reductions reflecting an easier market condition. Some reductions, however, have been bold bids for business with confidence in the volume of business to cover any possible excess of price cutting.

There is no doubt but that the general efficiency of labor is above the 1915-1916 level. The impetus given building construction by the war work for the Government; the spirit which filled the great majority of war workers; the need of speed coupled with good work, all have tended to make labor of more worth than in the pre-war period. If labor recedes to the work standard of 1915 the wage scale should drop. If labor maintains its present standard, and shows appreciation of today's demand for increased efficiency, the present wage, or even a higher wage, would represent a net gain to every investor. If labor working eight hours at \$1 per hour produces more and better work than it did working ten hours at 75c the owner gains.

The duty of every architect is clear. He should at once bring to the attention of those contemplating construction the extreme advisability of preparing plans and specifications and securing estimates at the earliest possible moment. The conditions are now favorable but will rapidly change if every one waits until all projects are put on the market at once.

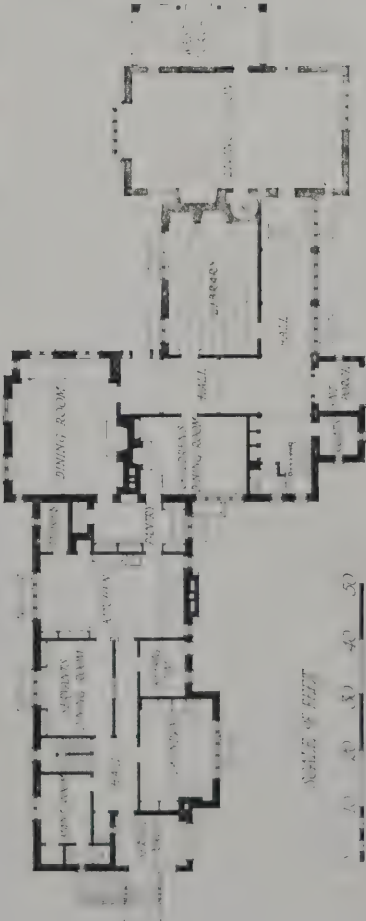
Owners and investors should also be reminded that the interval between the inception of a project and the awarding of contracts is the period during which any price change may be carefully studied. It is not possible to decide on a plan for a building and award a contract the next day. It is obvious also that in many instances the loss that is being sustained each day from idle capital and idle labor is far greater than any possible additional cost over pre-war prices.



DETAIL OF LIVING ROOM WING
HOUSE FOR C. D. BARNES, ESQ., MANHASSET, LONG ISLAND, N. Y.
PEABODY, WILSON & BROWN, ARCHITECTS



ENTRANCE FRONT FROM FORECOURT



FIRST FLOOR PLAN



SECOND FLOOR PLAN

HOUSE FOR C. D. BARNES, ESQ., MANHASSET, LONG ISLAND, N. Y.
PEABODY, WILSON & BROWN, ARCHITECTS



VIEW FROM NORTHWEST



VIEW FROM SOUTHWEST

HOUSE FOR C. D. BARNES, ESQ., MANHASSET, LONG ISLAND, N. Y.

PEABODY, WILSON & BROWN, ARCHITECTS



LIVING ROOM

HOUSE FOR C. D. BARNES, ESQ., MANHASSET, LONG ISLAND, N. Y.

PEABODY, WILSON & BROWN, ARCHITECTS



DINING ROOM



LIBRARY

HOUSE FOR C. D. BARNES, ESQ., MANHASSET, LONG ISLAND, N. Y.

FEABODY, WILSON & EROWN, ARCHITECTS



GENERAL VIEW OF ENTRANCE FRONT
HOUSE FOR MRS. J. E. S. HADDEN, WESTBURY, LONG ISLAND, N. Y.
PEABODY, WILSON & BROWN, ARCHITECTS



DETAILS ON ENTRANCE FRONT

HOUSE FOR MRS. J. E. S. HADDEN, WESTBURY, LONG ISLAND, N. Y.

PEABODY, WILSON & BROWN, ARCHITECTS



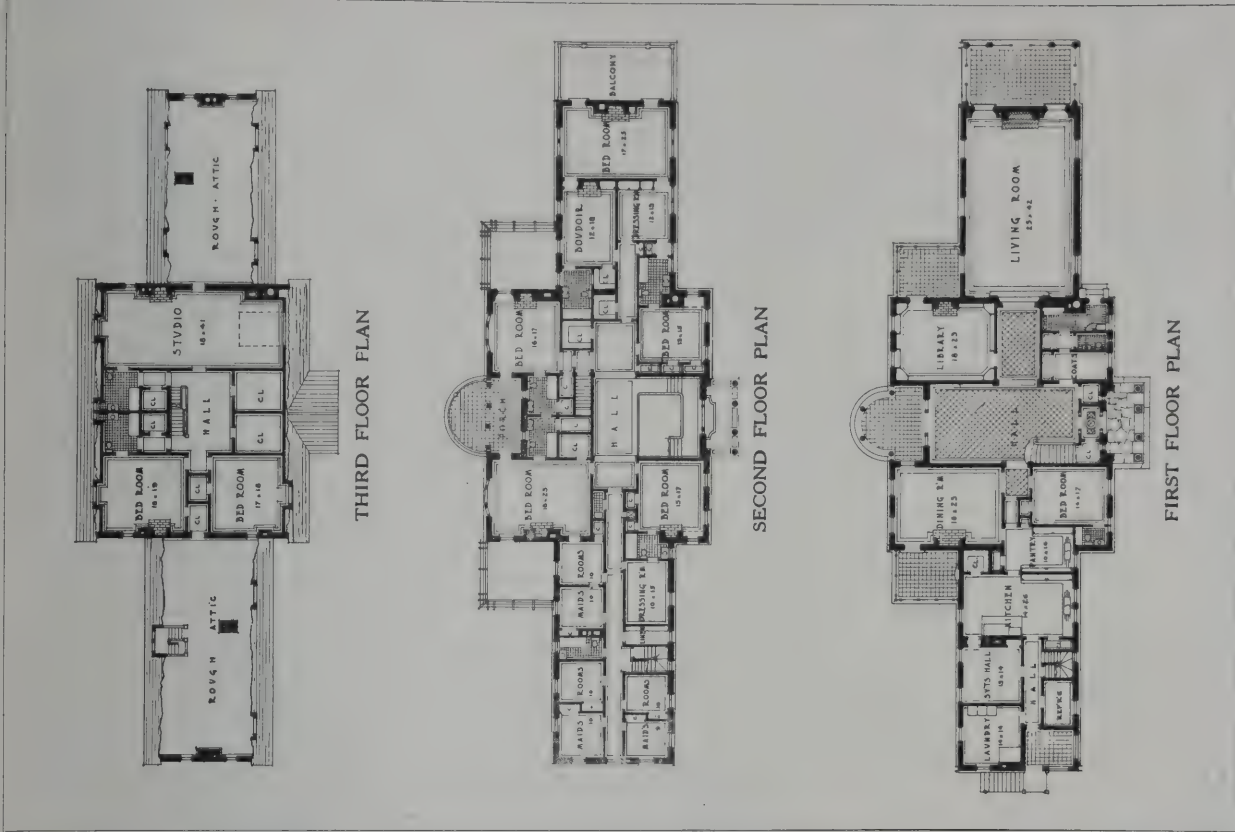
VIEWS OF SOUTH TERRACE
HOUSE FOR MRS. J. E. S. HADDEN, WESTBURY, LONG ISLAND, N. Y.
PEABODY, WILSON & BROWN, ARCHITECTS



GENERAL VIEW OF ENTRANCE, FRONT
HOUSE FOR A. LUDLOW KRAMER, ESQ., WESTBURY, LONG ISLAND, N. Y.
PEABODY, WILSON & BROWN, ARCHITECTS



GENERAL VIEW OF GARDEN FRONT
HOUSE FOR A. LUDLOW KRAMER, ESQ., WESTBURY, LONG ISLAND, N. Y.
PEABODY, WILSON & BROWN, ARCHITECTS



ENTRANCE HALL AND STAIRWAY
HOUSE FOR A. LUDLOW KRAMER, ESQ., WESTBURY, LONG ISLAND, N. Y.
PEABODY, WILSON & BROWN, ARCHITECTS



DINING ROOM



LIVING ROOM

HOUSE FOR A. LUDLOW KRAMER, ESQ., WESTBURY, LONG ISLAND, N. Y.
PEABODY, WILSON & BROWN, ARCHITECTS



GENERAL VIEW AND FLOOR PLANS
HOUSE FOR HUNTINGTON NORTON, ESQ., OYSTER BAY, LONG ISLAND, N. Y.
PEABODY, WILSON & BROWN, ARCHITECTS



DETAIL OF ENTRANCE PORCH
HOUSE FOR HUNTINGTON NORTON, ESQ., OYSTER BAY, LONG ISLAND, N. Y.
PEABODY, WILSON & BROWN, ARCHITECTS



LIVING ROOM END OF HOUSE



ENTRANCE FRONT



GARDEN FRONT

HOUSE FOR JOHN S. PHIPPS, ESQ., OLD WESTBURY, LONG ISLAND, N. Y.

PEABODY, WILSON & BROWN, ARCHITECTS



LIVING ROOM



DINING ROOM

HOUSE FOR JOHN S. PHIPPS, ESQ., OLD WESTBURY, LONG ISLAND, N. Y.
PEABODY, WILSON & BROWN, ARCHITECTS

A Group of Long Island Country Houses

FROM THE DESIGNS OF PEABODY, WILSON & BROWN, ARCHITECTS

THE design of country houses is ever a field of fascination to the architect. The possibility of direct interpretation of the client's taste and mode of social life is very definite in the country dwelling, and makes a greater opportunity for diversity of treatment than in any other type of building problem an architect is called upon to solve. It is because of this close relation between requirements and completed structure that the average architect devotes far more time and effort to the study of the problem than his financial compensation should warrant. This combination of circumstances, together with a more lively interest and keener appreciation of beauty on the part of the layman has been responsible for the remarkable advance in the standards of our domestic architecture which the last decade or so has witnessed. There is particular interest, therefore, in observing the work of a single firm of architects designed concurrently over a given period of time and for different clients, as afforded by the present examples from recent work of Messrs. Peabody, Wilson & Brown on Long Island, New York. These houses show a versatility of treatment from the standpoint of architectural precedent that is unusual, especially when it is observed how carefully the details of both exterior and interior have been made to conform with the period into which the house may be placed, but which at the same time exhibit a spirit of freedom and originality that makes the architect's handling of the various styles equally distinctive.

The house of A. Ludlow Kramer, Esq., at Westbury, is a free translation of colonial motives giving in its general mass and use of the two-storied entrance portico suggestions of Southern forms. Its detail has been developed in a restrained manner and is of exceedingly light and graceful

character. A good balance of color is maintained between the red brick walls and white trim. This is effected chiefly by the light main cornice, the lower members of which are carried out in brick. The portico having a full entablature is, therefore, easily afforded the position of dominance on the facade. The garden front is given an intimate relation to the setting by the semi-circular porch and open loggia above, which again recall features of some early Southern houses.

The house was planned with special reference to its site. The land slopes gradually from front to back and the view of greatest interest is from the rear. The main rooms are disposed at this side of the house, the living room, twenty-five by forty-two feet in size, occupying the whole of the right wing. A glazed porch at the end of this wing links the house with the walled-in flower garden. The walks of this garden are paved with broken flags, and interesting arched openings in the wall give vistas to a wooded knoll opposite the porch and on the other axis to the rose garden and pool at a higher level.

The house of Huntington Norton, Esq., at Oyster Bay, shows a development of the old Dutch farmhouse type seen on many parts of the island. These old houses are characterized by a central mass having a simple composition of six openings, three windows above and two windows and doorway below. The cornices have but slight projection and the gables are finished without an overhang. One or two lateral wings of lesser mass complete the scheme. The exterior is covered in most cases with either large shingles or wide siding.

The character of these old farmhouses is reflected in the architect's treatment of this house. Architectural features have been kept few in number and the detail portrays



View in Flower Garden Looking Toward Upper Level

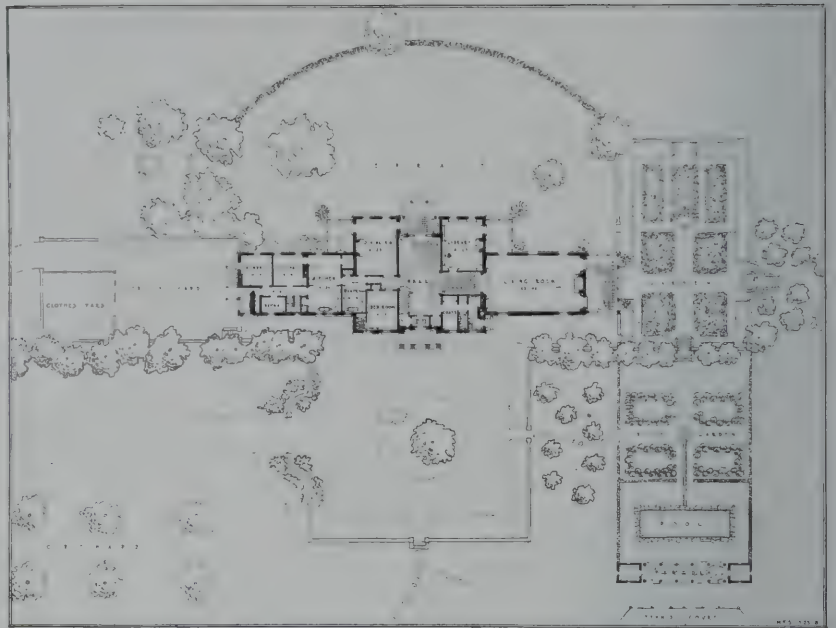
House of A. Ludlow Kramer, Esq., Westbury, Long Island, N. Y.

colonial spirit, but in every instance it has been reduced to the simplest terms, depending upon mass and outline for its effect. The living room occupies the whole of the west wing and has an outlook in three directions.

An open terrace on the south side gives an uninterrupted view across the hills, and the porch on the west, shows a successful handling of a large outdoor living space with sleeping porch above.

The interior is carried out in simple colonial fashion having painted walls and wood mantels. The living room is two steps lower than the remainder of the house, affording an interesting interior vista and giving added height and attraction to the largest room.

The cottage for John S. Phipps, Esq., is the result of alterations and additions to an old building located in that quaint section, known as Old Westbury. It was originally erected during the eighteenth century and though altered from time to time, and allowed to deteriorate to such



Ground Layout, House of A. Ludlow Kramer, Esq., Westbury, Long Island

an extent that it became objectionable, it still retained some of the attractive qualities of the original farmhouse. The architects' problem was to make use of the main structure and wings, as far as possible, and with such additions as were necessary, enlarge the house so that it would be rentable for that section of the country. The results shown in the illustrations were obtained by using the original portion of the old house as a guide for the extension of the roof lines. The main building was thereby changed on the garden front from a three-opening composition to one of five. By extending the building on the entrance



View of House From Flower Garden

House of A. Ludlow Kramer, Esq., Westbury, Long Island, N. Y.



Tool House

front, and continuing the roof lines to eaves at the first story, an attractive cottage character was secured.

The house of Mrs. J. E. S. Hadden at Westbury, illustrates a modern handling of a design problem following English precedent more closely probably than any other, in which the setting plays an important part. The house is entirely surrounded by trees and is situated on a knoll about two miles from the town. It is designed to fit in naturally with its environment and to provide a quality of informality. The latticed windows, glazed porches and copper-covered stoops above the French windows on the terrace side give an interesting suggestion of some attractive English houses built in the later years of the Georgian period.

The walls are constructed of common red brick. The steeply sloping roof is covered with slates in varying shades of brown, green and black. The exterior woodwork is oak left in its natural state. Most of this woodwork was obtained from old buildings and barns in the neighborhood and left with its old natural aged color and adzed surfaces.

The intimacy of house and grounds is perhaps best shown by the views of the terrace. Here the trees are thinned out to provide a sunny spot just outside the windows of the principal rooms. A brick wall with an arched doorway screens the terrace from east winds and the service portion beyond. Old broken stone flags with wide grass joints form the pavement of the terrace, greatly adding to the informality and making a harmonious link between house and surroundings.

The house of C. D. Barnes, Esq., at Manhasset is based on the sturdy lines of early English houses, with steeply sloping roofs broken by many gables. The



Garden Side of Cottage Before Alteration



First Floor Plan Before Alteration



Second Floor Plan



First Floor Plan



Detail of Entrance Porch

Cottage on Estate of John S. Phipps, Esq., Old Westbury, Long Island, N. Y.

eaves project but slightly beyond the walls, and are for the greater part brought close to the ground to give that comfortable homelike quality so universally admired in English houses. The roofs are covered with heavy slate graduated in size and thickness and varying in shades of brown and black. The valleys are rounded, thereby adding a distinctive note of character.

The walls are a mixture of common red brick and dark headers laid at random and slightly out of plumb and wind to create an appearance of age. The exterior woodwork is of oak, a large part of which was obtained from old barns in the vicinity and left in its natural aged color.

The interiors are in full accord with the exterior design. The living room in both architectural treatment and furnishings reflects the character of English rooms of the sixteenth century. The walls are of rough plaster, hand patted and tinted buff. The woodwork is of old oak, dark brown in color. The beam above the fireplace is a particularly fine example of Jacobean wood

carving. The overmantel is of decorative plaster, worked out in a heraldic manner. Much of the character of the fireplace is due to the large fire opening and the brick lining laid in herringbone fashion. The group of windows at the end of the room is made up of leaded casements into which enough stained glass panels are inserted to give a desirable note of color.

The library and dining room exhibit a comfortable Georgian character. The end of the library formed by flush bookcases extending to the ceiling and broken by a recessed doorway is most effective. The dining room is devoid of architectural features, save the simple marble mantel; it is, however, a distinctive room in which color plays an important part. The walls are hung with a reproduction of a Chinese painted paper and the Sheraton chairs are upholstered in old vermilion leather. The early English character is again reflected in the long corridor on the entrance side of the house, where rough plaster, hand-hewn timbers, stone floor and casement windows create an ensemble of quaintness and romance, eminently fitted to the

simple type of living Americans have come to associate with the country.

A reflection of the sentiment put into the designing of this house is indicated by its name. It is called "Nonesuch House," not as a mere matter of fancy, but because of an historical inspiration employed in the decoration of its living room. "Nonesuch" is familiar as the name of a famous palace of Henry VIII, but in spite of the fact that it was a worthy example of the work of the Early Italian artists brought to England by Henry, nothing remains of it except some decorative fragments now in museums. One of these is a piece of needle work from which the hand blocked linen used in the upholstered furniture of this room is reproduced.

Respect for precedent coupled with a sincere interpretation of the client's requirements in the light of modern conditions, and recognition of advantages afforded by the topography of the sites, explain the success of this and the other houses illustrated. The trend of present-day design is further, towards simplicity of motive and directness in the expression of plan, requiring on the architect's part a thorough knowledge of materials and a sympathetic understanding of suitable combinations with which pleasing results may be obtained and in this, the present houses have profited to an unusual extent.



View of Hall Toward Living Room

House of C. D. Barnes, Esq., Manhasset, Long Island, N. Y.

The Architect of the Future

PART II. SALES ORGANIZATION IN AN ARCHITECT'S OFFICE

By C. STANLEY TAYLOR

IT has been said that war reverses practically every human activity and nowhere is this truer than in relation to a producing business of any nature.

In normal times, principally in the industrial field, a demand must be created in order to find an outlet for the supply, upon the marketing of which profit is based. In times of war all unnecessary industries are restricted, and in the field of essential industry demand is automatically created, while the entire attention of the executives of producing plants is directed to forcing supply to meet that demand. In an essential industry in time of war the creation of demand, or as it is called, "salesmanship," is not of paramount importance as it is in ordinary times.

The term "reconstruction period" inherently connotes a period of transition or a state of flux in which there are no extremes. We find, then, that in this period the creation of a demand and an organization to produce supply are practically of equal importance. This is a period when sales organizations are being developed and are outlining programs and policies. At the same time production units and the machinery of supply are being organized on a peace basis and made ready to meet the demand which is certain to develop in all normal lines of production which were checked by the abnormal conditions of war.

Undoubtedly the most important production and that which most greatly felt the check of war conditions has been the building industry. It is significant to read the indication of the importance of a building program in the reconstruction period. Labor experts are looking to building activities to absorb excess labor which is no longer necessary for carrying out of large war production programs. The very nature of the types of building which are necessary to redevelop peace activities shows clearly that the architect is to be called upon to play the part of an important factor during the after-war period. There will be a great amount of work for architects, but those who are most successful will be those who have recognized the transitory state of business and have given particular attention not only to the development of a good productive force — or in other words a well organized architectural office — but to the selling force which will be needed to create a demand for the services of a particular office and to bring the merits of the organization to the attention of prospective clients.

The subject of salesmanship in connection with an architect's office offers an interesting opportunity for analysis. In general it may be said that the average architectural office today lacks entirely any

clearly defined selling activity. The salesman is usually the architect himself or a member of the firm, and the methods through which work is brought into the office are various, and in many cases, intangible. Actual constructive selling has been held as unethical in many instances and the development of business has been through social and political connections; through recommendations of clients and often as the result of well deserved publicity given unsparingly by the press.

The idea of developing new business through social connections is good, provided real service is given; but with the growth of modern business ideas there is a consequently growing demand for better and more constructive service. With the æsthetic factor the utilitarian is being combined by popular demand. The architect to keep abreast of the times will not only know his own business but will be able to appreciate the business needs of others and through the medium of fitting design he will be able to create buildings which are veritable business machines in their efficient carrying out of the purposes of occupancy. In this manner, though the first contact with a client may be of a social nature, the continuance of good-will and the building of a reputation for good work will be contingent upon meeting the client's wishes rather than forcing upon him a building with which he is at least partially dissatisfied.

If we were to prepare a functional chart applicable to an architect's office we would find it essentially the same as that of a manufacturing concern in which the selling factor should play a most important part. The sales force must be the eyes of the office. Having contact with outside conditions, the suggestions of those who are experiencing the business contact will prove of exceptional value to the designer and engineer.

To sell the services of an architectural organization one must be equipped with constructive imagination; a quick and receptive mind; a sense of business orientation which makes possible a discussion of the broader features of any building project; a knowledge of financing and real estate operation and, last but not least, a sense of humor which is quick to meet and obviate an unpleasant situation.

Another subject which must be settled definitely in the mind of the salesman is that of misrepresentation, either wilful or unconscious. If architecture is to be placed on a business basis every contract must be carried out along business lines. To do this there must be clearly established the exact service which the architect feels he can render and he must be frank in stating his limitations whatever they may be.

Depending on the size of his organization and the capacity of the men who comprise its personnel there is practically no limit to the contribution he may make to his client's project. No office should ever attempt to go beyond its capacity, nor should statements be made which cannot be substantiated in deed.

It will be found upon analysis of the question that there are two broad classes of distinct methods of selling architectural services. The first and most interesting may be termed the constructive sales method. The second is the passive or receptive method. The constructive sales method, in the course of which a project is conceived and worked out to the point of building, is by far the most productive and most interesting. The receptive method, which is that of practical dependence upon recommendations of friends and clients is easier but more limited in scope and opportunity. As a matter of fact the architectural offices of America today may be divided into two classes along the lines indicated. The average office during past years has been of the receptive type. The progressive and successful offices of the receptive type are with a few exceptions explainable as due to social influence.

Constructive sales methods offer in the near future many opportunities for the rapid expansion of the activities of an architect's office. In this after-war period the minds of business men are in a state of flux. Old methods and old traditions have been uprooted and changed. During the period of war the activities of every business interest have been directed to some form of contribution to the building of a tremendous war machine. The purposes of many of our factories have been diverted from peace production and placed on a war basis. Building construction of every nature not absolutely necessary to the carrying out of the war program has been restricted even as all business activity along such lines has been coördinated and redirected according to the demands of war conditions. Now we are in the reconstruction period and the great problems of peace production are facing the business world. We need office buildings, dwellings of every nature ranging from small houses to great apartment houses. In spite of the construction of many factory buildings, the demand for structures of this type has not ceased, as many of the factories built during the war period were for specific purposes not entirely filling the need of peace production. As a result of this condition there are being contemplated the construction of paper mills, machinery assembling plants, fertilizer plants, while a great quantity of remodelling of factories will take place. At various ocean and lake ports throughout the country where the demand of foreign commerce is foreseen, great terminal projects are being considered, including the building of warehouses and storage buildings of various types, refrigeration plants, buildings for light manufacture. State

and municipal improvements in the form of buildings of many kinds are to be undertaken in a measure heretofore unknown in this country. Educational buildings will go forward. To sum up the situation, immediately upon a clearly defined declaration of peace terms, business will suddenly resume its normal course, attempting in a short time to make up for the loss of momentum in peace activities.

The United States today is twenty-five per cent under-built in homes, and it may be confidently expected that within the next two or three years a million new homes will be started. Another interesting field is opened up in the designing of fine suburban residences and country homes. Thousands of people have been made rich in the course of war activities and even now are considering home building on a scale heretofore unknown to them. The real estate situation, which in almost every section of the United States has been practically dormant for some years, shows signs of reawakened activity on a scale undreamed of even by realty operators and brokers. Transportation improvements are contemplated in practically every large industrial city in the country, and at the points where the newly extended transportation lines meet partially built up territories, a large volume of building construction may be expected.

To the architectural office, therefore, which undertakes selling along constructive lines, there is offered a rich field for endeavor. The building needs of various business activities can be quite accurately forecast. In the field of apartment houses and office building construction the architect will find many interests in a receptive mood provided a definite scheme may be submitted. Suburban developments are to be undertaken and where a housing shortage is acute it is certain that a carefully worked out plan for development to provide the necessary type of homes will receive favorable attention and interest of local capital.

Basic national changes are taking place which are to influence and induce building alteration and construction, for instance, the national prohibition movement which has now reached a climax predicated the abolishment of the liquor traffic in this country. The result of the closing of saloons and the reorganization of many forms of business which heretofore have depended upon their income from the sale of liquor as a large source of profit will result in considerable increase in amusement and recreational enterprises of another character. Theater attendance, particularly at motion pictures, will increase. Community and athletic clubs will largely take the place of cafés. Hotels must be constructed along new lines and in many cases remodelled to offset the cessation of profits from the liquor traffic.

It is plain, therefore, that architects as a profession will benefit greatly in the next few years through the resumption of building on a large scale.

It is also plain that those organizations equipped to carry out their work along businesslike lines and to sell their services in a constructive manner will have the greatest success, not only in the amount of work on their boards but in the creation of good-will and good reputation.

In order to put into force a constructive sales policy in an architectural office the first step to be taken is an analysis of the present organization to determine:

1. What real service can be offered to the client with the existing organization.
2. How can the organization be bettered to enter into broader fields of activity.
3. What general classes of building design is the organization best fitted to carry out.
4. How can the merits of the organization be brought before possible clients.

In studying the organization of an architectural office it will be found that the best accomplishments of the past have been along certain lines, for instance, the design of city residences and apartment houses, suburban and country homes, office buildings, or any other of the general types in which buildings may be classified. The result of this analysis will indicate clearly the fields which can be most successfully followed in constructive selling, as the salesman is already in possession of one more selling feature, that is, successful accomplishments in the design of the type of building for which he is attempting to sell the services of his organization. If it is felt that the type of work for which the present organization is best fitted is too limited to meet the possibilities of the next few years, a careful study of local developments and demand should be made in order to determine which classes of design it is most desirable to undertake in addition to those for which the organization is already fitted. Having determined the exact field which it is desired to cover, the organization must broaden in order to offer the client full service of an existing organization:

In carrying on an architectural practice in common with most professional activities there is not required a large plant investment as in the conduct of a manufacturing business. It must be realized that except for office furniture and rental obligations, an architectural office represents no actual investment and for this reason if a field for extended activities offers sufficient inducement, there should be no hesitancy in enlarging the organization even before the actual work is in the office. This extension of the organization should take the form of adding to the payroll a few high-priced men who have made successful records in the particular field which it is desired to enter. This development offers another feature for the salesman to present to a possible client in showing reasons why the services of his organization should be retained for a particular project.

Another determination which must be made in building up the organization is exactly what scope of activity it may be desired to cover in any building project. In general it would seem advisable that architecture and engineering be combined in carrying out the design of building projects. The architect is not an engineer, and engineering advice in many instances will not only simplify design, but will insure economy in construction which will be appreciated by the client. Added to the architectural and engineering activities there must be a third activity in order to create a well rounded service for the client, particularly in the design of business buildings of any nature. This third activity is difficult to define, but it might be classified as an expert business service, having as its purpose a careful study of the real estate and financing features of any project together with efficiency of design, in order to make the building most closely fitted for its purpose. Reducing this service to terms of personality, it is perhaps the most difficult activity to include in the organization. In some cases real estate experts having had general experience in the management of business buildings have been taken in this part of the architectural organization. In other cases manufacturing experts and efficiency engineers have been found the best type to include in the organization. Perhaps the best criterion of the type of man most fitted for the particular work of supplying business judgment to all projects is the nature of building design which the office may specialize in. In all cases the business service of the office should be part of the activities of the sales organization. A salesman who is equipped with general business and architectural knowledge sufficient to discuss with clients not only types of building, but financing, organization and purpose of the project, will not only prove the most successful salesman, but will prove invaluable to the office as a critic of design and construction.

Another fact which may be recorded at this time is that the weakest point in the average architectural office is that of quantities and estimates. Naturally one of the first questions of a client is relative to cost, and unless this can be answered in a satisfactory manner the best efforts of the salesman will be nullified. Careless or snap-judgment cost estimates should never be made by the salesman; in fact, it is well to incorporate in the office a general rule that no estimates of cost are to be given to a client until the estimator has first had an opportunity to figure on the job. A mere statement by the salesman of this organization rule will satisfy any business-like client and reassure him as to the quality of service which is offered.

Having determined the fields in which it is desired to operate and the exact service which may be rendered to a client in any one of these fields, the salesman is interested in bringing before the public in every

possible manner the merits and accomplishments of his organization. In doing this he will not neglect an opportunity for publicity through the various mediums which are editorially interested in such activities as his organization may be engaged in, nor will he scorn the possibilities of direct advertising, selecting dignified mediums to carry his message into the fields which he wishes to reach, in a manner tending to invite confidence and interest in the service which he has to offer.

The constructive salesman will study the possibilities of developing communities and of growing business needs. He will study the organization of business activities which will sooner or later need building construction. The question of financing and the bringing together of financial interests and clients in order to consummate a building project is a method which should not be overlooked by the architectural salesman. A recent case in the office of Mann & MacNeille will serve to illustrate the possibilities of such constructive salesmanship. In this particular case a large manufacturing concern had in mind the organization of a real estate development company to build a residential addition to a city at a point near their principal plant. During the course of the first conversation between the representatives of the office and the client the latter made the following remark:

"I am very much interested, gentlemen, in your ideas as to the design of these houses and the layout of the property, but I believe I have taken the second step first. The first man I wish to talk to is the man who can advise me on the organization and financing of this development company. When I am ready for the second step I will be ready to take up the matter with architects."

Fortunately, the extent of this organization made it possible to reply:

"It is not necessary, Mr. —, to take up that step outside of our organization, as we have experts who will prepare for you an organization and financial report which may be used as the basis for the first step in carrying out your project."

The result was that the preparation of this report was authorized and a project which might otherwise have been lost to the office was soon on the boards.

It must be realized that even though a client may wish a building for purposes of his own business, he may not be the best judge as to the type of building which should be provided. Here again the services of the properly developed sales organization will be utilized in studying the location and type of building, consulting if necessary with others who have had a similar building in order to be able to produce for the client the most efficient and suitable building for his purpose.

The foregoing points cover in a general way activities of a business and sales organization in an architect's office and will serve to indicate the many possibilities of applying business principles to the mutual benefit of the architect and his client.

It must be understood that although for purposes of emphasis the business features of the architectural office have been rather extensively outlined, at no time has the importance of good design been purposely underrated. The designer has a particular function in the architectural office which is most important and without which the selling and business aspects of the organization would prove useless. When it has been determined as to the type of building desired, the services of an efficient designer to prepare quickly sketch plans will prove a most valuable adjunct to the carrying out of a project. The functions of the designer should be clearly defined. His is not a business of carrying out working drawings, but of creating a basis for them, and his most active hours will be those spent in thought and consideration of the problem which has been placed before him. The provision of intelligent and constructive criticism through the engineering and business divisions of the office should not hamper, but should rather stimulate the designer to the creation of a type of building which will combine esthetic and utilitarian qualities to the satisfaction of the owner and without a sacrifice of professional dignity or a pandering to commercialism.

Frank E. Wallis, in an interesting description of the development of Gothic architecture, says, "When the builders of the thirteenth century received orders for churches more than twice the size of any that had ever been built, their chief difficulties were mechanical, as may be imagined." After describing the method by which piers and buttresses were provided to take up the thrust which developed from the load of the roof and the stone vaulting, he proceeds: "These walls or buttresses were constructed in the form of arches anchored at the outer edge with heavy masonry, growing from raw utilitarianism into the pinnacled glorification of assurance, economical of material, but necessary as the bones of the human organism are necessary, an external rather than an internal skeleton."

So, in the development of modern American business and home architecture (which during the reconstruction period will be more clearly marked than ever before in the history of this country) the development of the esthetic qualities of such architecture will be influenced for the better by the utilitarian demands of modern business and engineering rather than restricted by commercialism. It is interesting to realize that behind every definite period of artistic development in the field of architecture there may be recognized a clearly defined business stimulus.

The New Arsenal Technical Schools at Indianapolis, Ind.

H. VAN BUREN MAGONIGLE, ARCHITECT

THE newer note that is creeping into our educational systems is evident in the number of trade and vocational schools contemplated for early erection in some of the larger industrial centers of the country. One of the most important, because of its size and scope of projected service is shortly to be erected in Indianapolis, Ind., and to be known as the Arsenal Technical Schools.

Indianapolis enjoys the distinction and advantage of having what is termed a "School City," which is a separate department of the city government, independent of the political city and possessing power to issue its own bonds. This has been a large factor in a consistent growth of the city's school facilities, and the new technical school is a logical further development.

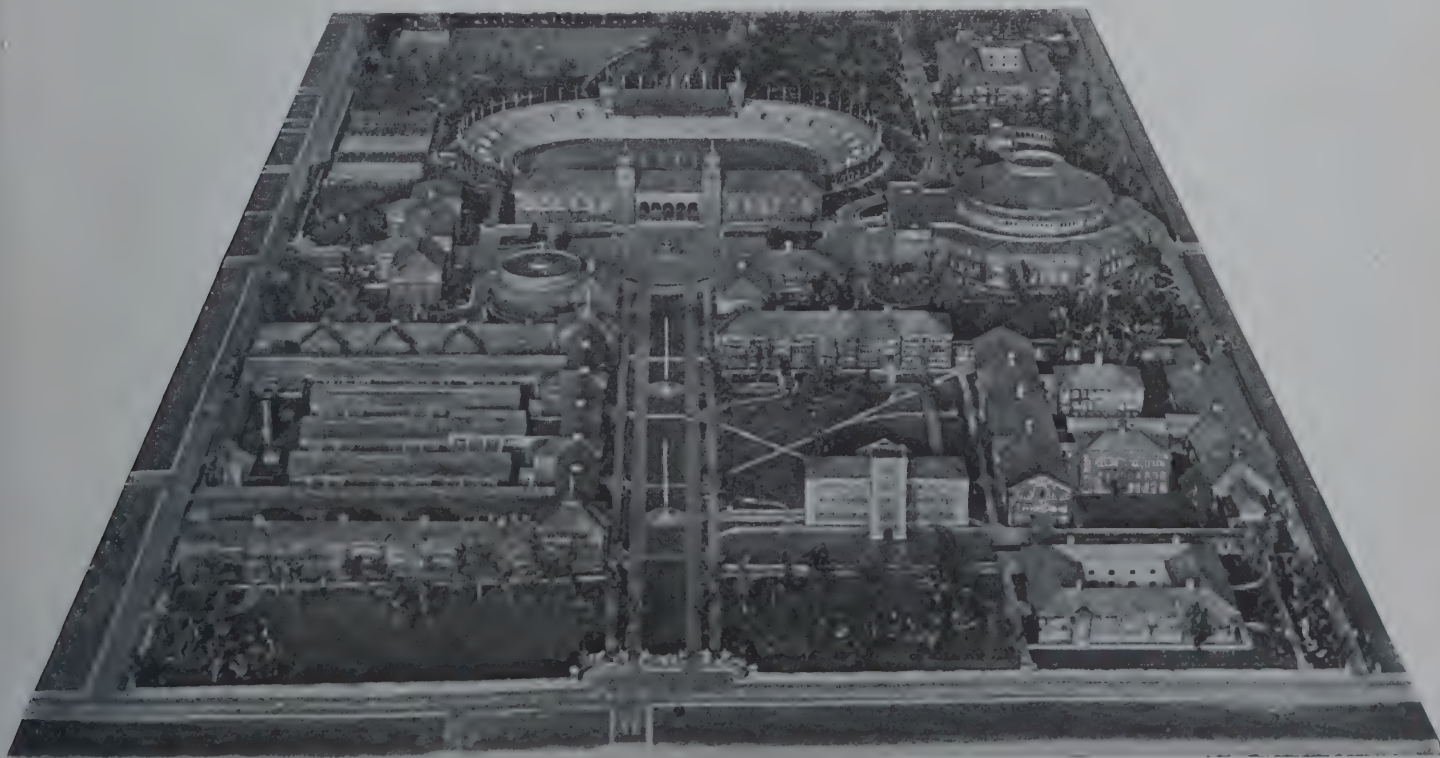
The possibility of a school carried out on a large scale came when the "School City" obtained the site of the old United States Arsenal, 76 acres in extent, 1250 feet by 2500 feet. A small semi-temporary building was erected on the site and the existing old Arsenal buildings were utilized for school purposes as far as their character would permit. An industrial survey of Indiana and the City of Indianapolis brought to light many uses for such a school and it was in special reference to what was discovered by the Indianapolis survey that the present plans were made. The school serves primarily the city of Indian-

apolis, but with its greatly enlarged facilities it might easily have some effect upon the industrial life of the State. The new construction will be financed through the usual school bonding system. Its facilities are entirely public, no tuition fees being charged. It has the enthusiastic support of both industrial leaders and labor and with their coöperation, it should prove of singular advantage to its community.

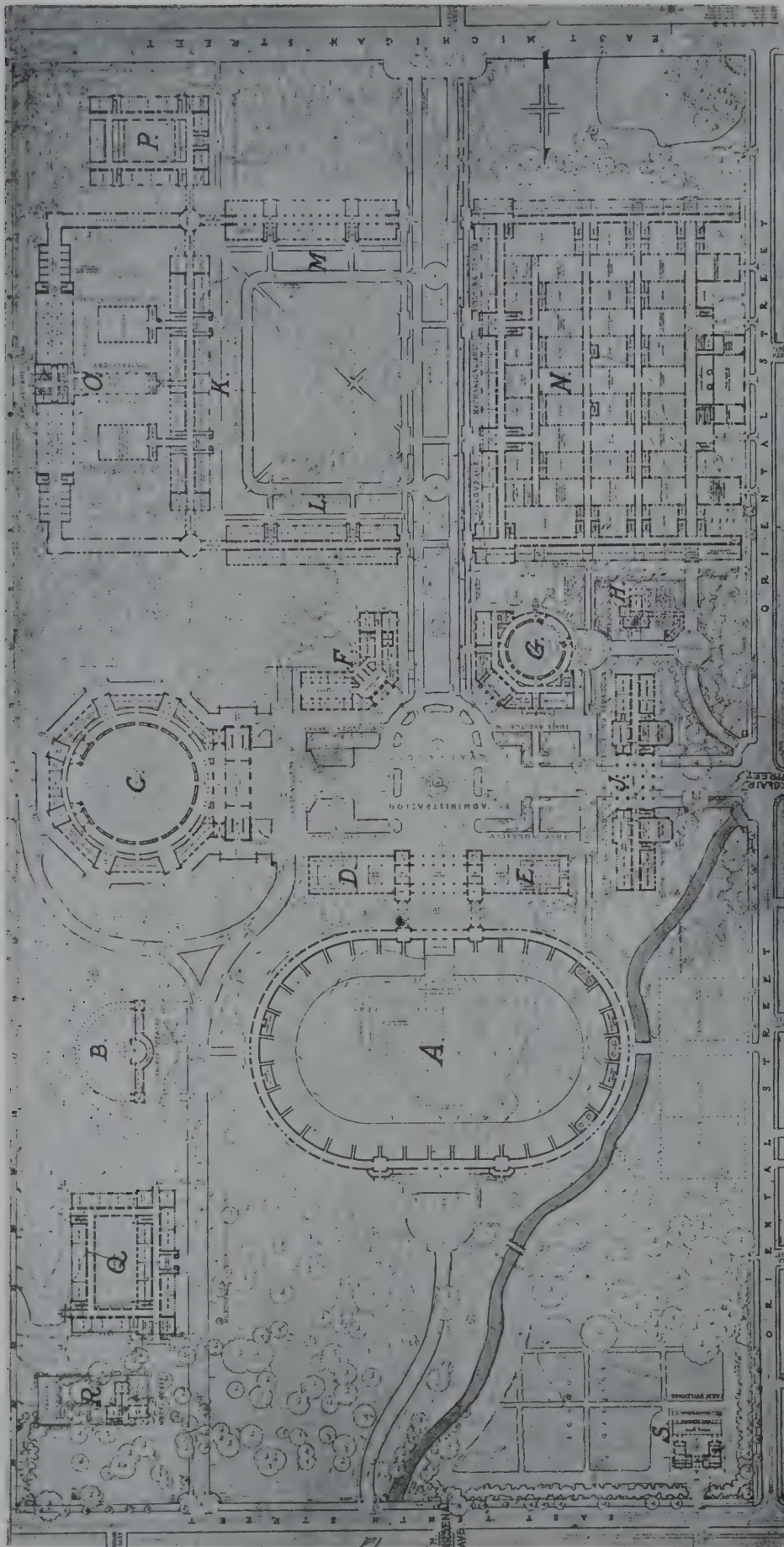
A general description of the plan and the individual buildings is afforded by the following excerpts from the report of the architect, H. Van Buren Magonigle.

THE people of Indianapolis are fortunate in the possession of a site for the Arsenal Technical Schools of unusual advantages, qualities and beauty. It is only a mile from the very heart of the city and equally accessible therefore from every part. As the former site of the United States Arsenal, it has historical associations. It has many natural beauties—slightly rolling ground with groves of fine trees interspersed with more open spaces. A stream, Pogue's Run, flows through the northwesterly corner and further diversifies and gives interest to the grounds.

An opportunity rarely presents itself for the establishment of a great school in an environment of such distinguished natural beauty and one's first impulse upon beginning the study of the possible development



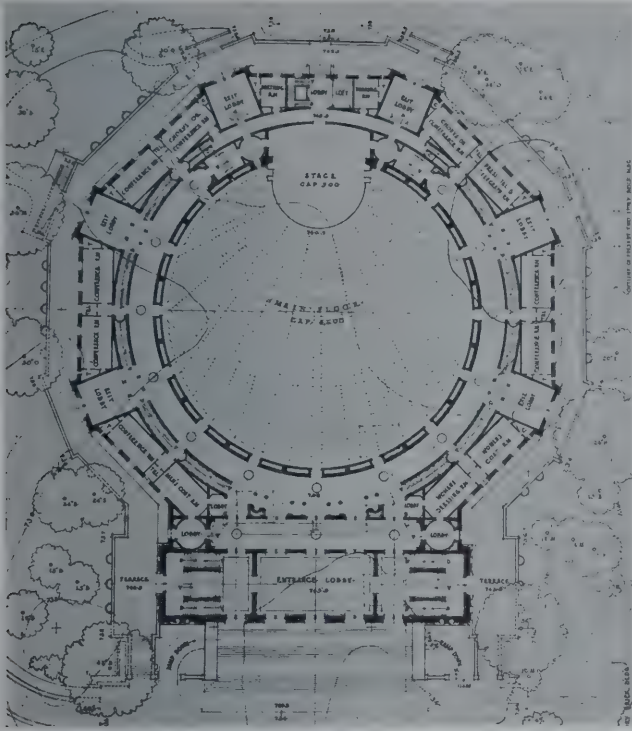
General View of Model Looking Down Main Axis, the Prolongation of Arsenal Avenue



- | | | | |
|--------------------|---|--|--------------------------------|
| A Stadium | F Administration Building and Library | K School of Liberal Arts | O Cafeteria |
| B Open Air Theatre | G Small Auditorium | L School of Commerce and Applied Design | P Southeast Junior High School |
| C Large Auditorium | H Superintendent's House | M School of Graphic Arts | Q Northeast Junior High School |
| D Girls' Gymnasium | J School of Industrial Science and Pedagogy | N Shops for Mechanical and Building Trades | R Model House |
| E Boys' Gymnasium | | | S Farm Buildings |

GENERAL GROUP AND PLOT PLAN, ARSENAL TECHNICAL SCHOOLS, INDIANAPOLIS, INDIANA

H. VAN BUREN MACONIGLE, ARCHITECT



Main Floor Plan of Large Auditorium

of this school is to determine to so design it that the native beauty may be preserved in the fullest possible measure, and to adhere to this determination throughout.

An examination of the property in its present condition reveals certain physical aspects which are controlling and suggestive. The portion south of the line of St. Clair street may be described as a lightly wooded plateau, sloping to a more heavily wooded ravine in its northerly side and by an even sharper gradient to Oriental street on the west, this westerly section being sparsely wooded. Along the southerly border is a good stand of trees and in the south-westerly corner a particularly fine grove chiefly of elms. North of the ravine above referred to and opposite St. Clair street is a wooded eminence about the same height as the southerly plateau and which slopes gradually to the west over an area quite free of trees, and to the northwest and north with various modulations, the land rising again in the northeasterly corner. West and northwest of Pogue's

Run it is practically flat and open, with few trees of especial value.

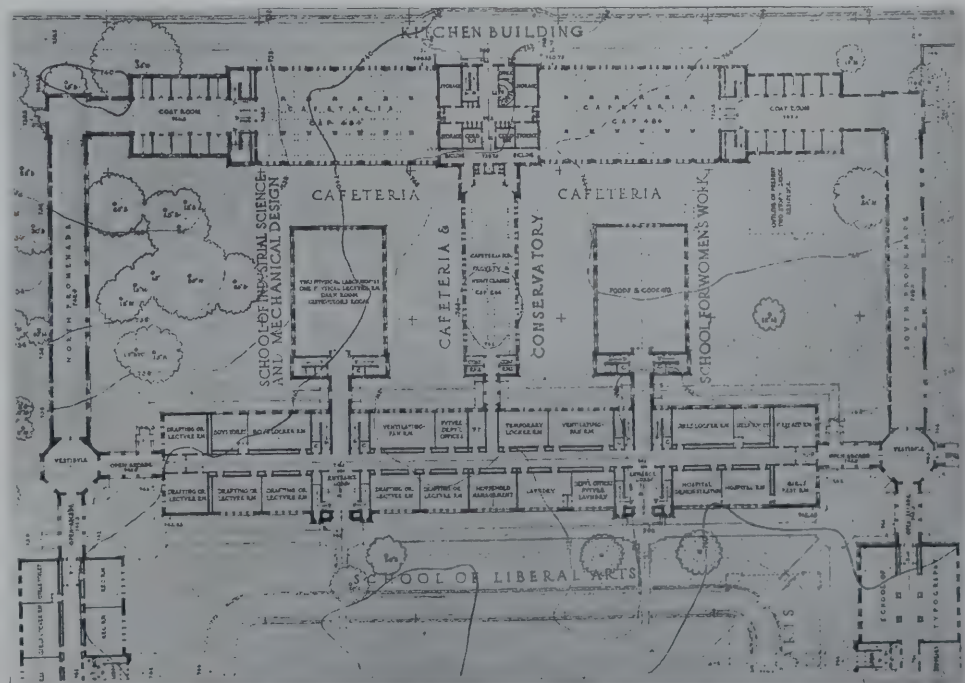
Turning now to the matter of approach and access, it becomes evident at once by reference to the city plan that Arsenal avenue is the principal line of approach and that St. Clair street, owing to the presence of the car barns opposite that entrance, will be almost as important. A street car line runs through East Michigan street on the southerly boundary, crossing the head of Arsenal avenue. Another swings into Oriental street on the west from St. Clair street and runs north to East Tenth street on the northerly border where it connects east and west with the line running through the latter thoroughfare.

It is evident, then, that we have two major lines of access, Arsenal avenue and East Michigan street on the south, St. Clair and Oriental streets on the west, and one minor from East Tenth street on the north; we may also consider the access through the cross drive of Woodruff Place on the east as a fourth but distinctly subordinate entrance.

Accepting a prolongation of Arsenal avenue as one cardinal axis and an extension of the axis of St. Clair street as the other, we may examine the ground to determine the most advantageous sites for the various buildings and groups of buildings. These buildings are to be:

School of Liberal Arts.

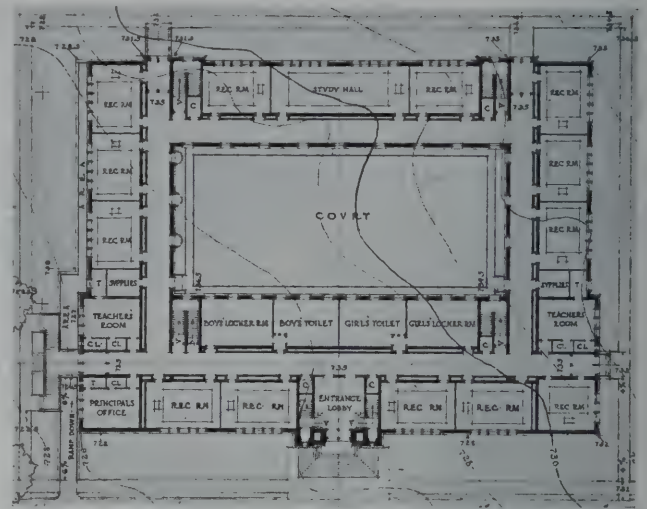
This is to be the first building erected and the problem has been to design it so that a certain portion or portions could be erected with the funds available in such a manner as to satisfy the immediate needs of the school and later lend itself to a redistribution of its uses when the whole school is in operation. This



Main Floor Plan of School of Liberal Arts Group

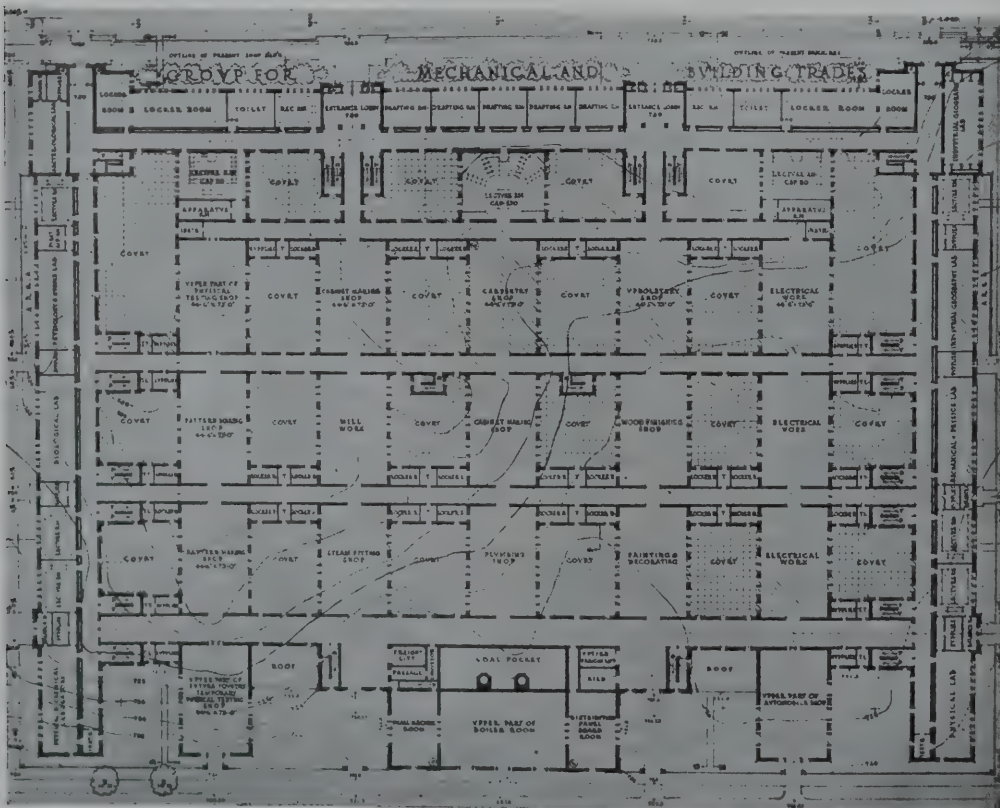
Group for Mechanical and Building Trades including Power House (Shop Group):

This building is proposed to be dedicated to the instruction and training of industrial leaders and of teachers for the Arsenal Technical Schools. Just as for our new army it was found necessary to establish schools of instruction for the officers who were to command it, the same necessity is beginning to be observed in the industrial and pedagogical fields. The technical school is in its infancy. The sources



Gymnasium for Boys and One for Girls.

It may be asked why an auditorium of a capacity of 9000 should be proposed as a part of this plan. The answer is to be found in the statement that Indianapolis very much needs an auditorium of this capacity wherein large industrial, social and political conventions may be held on a site close to the center of the city. It would also, while satisfying these civic requirements, provide a place where the entire school may be gathered together under one roof upon certain occasions.



Main Floor Plan of Shops for Mechanical and Building Trades



VIEW LOOKING ALONG ST. CLAIR STREET AXIS TOWARD LARGE AUDITORIUM



VIEW SHOWING ST. CLAIR STREET APPROACH AND STADIUM
MODEL FOR ARSENAL TECHNICAL SCHOOLS, INDIANAPOLIS, IND.
H. VAN BUREN MAGONIGLE, ARCHITECT

Open Air Theater.

Model House for Domestic Science Work.

Residence and Office for a Superintendent of Buildings and Grounds.

Farm Building and Greenhouse in Connection with School Gardens.

These fall naturally into two main divisions: (1) school buildings proper, and (2) those devoted to general or special purposes and especially for the assembly of large numbers of persons.

Upon analysis, it is logical to place the latter class of buildings near the St. Clair street entrance, where great crowds may be easily handled by the near-by reserve stores of cars in the car barns.

The other buildings with certain exceptions it seems proper to group about the Arsenal avenue axis on the plateau formerly described. The westerly portion of this plateau is quite bare of trees and slopes sharply down to Oriental street. Since the shops with their necessary laboratories, lecture and recitation rooms occupy a very large area, this site is admirably adapted to the purpose. The slope of the ground gives opportunity for two-story buildings, and a site for the future power house at the lowest point of the property, a consideration of weight in the distribution of steam or hot water. This group is designed as a hollow square formed by the classrooms and laboratories with the shops in the center. The southerly side of the square screens the shops from view from East Michigan street, the northerly screens them from the Administration Quadrangle, while the easterly side fronts on the main approach road from Arsenal avenue and forms one side of another square, the other three sides of which are occupied to the east by the School of Liberal Arts with the School of Industrial Science and Mechanical Design and School for Women's Work treated as extensions thereof to the rear, and still further east the cafeterias; to the north the Schools of Commerce and of Applied Design, and to the south sometime in the future a School of Graphic Arts; but for the present the old arsenal building will remain to frame that side. These buildings are so disposed that they spare the greatest possible number of trees and group themselves about a pleasant shaded area which we may call the School Quadrangle.

Now as to the grouping of the other buildings. By as fortunate a dispensation as that which gave the shops their ideal location, there is a large open area along and about the St. Clair street axis suitable for another large quadrangle around which the buildings having semi-public functions may be disposed, to be called the Administration Quadrangle. On the northerly side and on the axis of Arsenal avenue, are placed the two gymnasias connected by an open arcade which is flanked by two towers to give an adequate architectural accent to close the vista from Arsenal avenue. Immediately behind it in a large open space is

the Stadium with a seating capacity of about 22,500.

On the easterly side of the quadrangle on a slight eminence is the large Auditorium which centers on St. Clair street. The westerly side is occupied by the School of Industrial Science and Pedagogy, one feature of which is a great gateway of five arches through the building, the building itself shutting off the unsightly and uninteresting view of the car barns and St. Clair street from the quadrangle. On the southerly side and west of the Arsenal avenue axis is the small Auditorium and corresponding to it on the east is the Administration and Library Building which gives the quadrangle its name and which is placed here as falling conveniently near the intersection of the axes of the two main approaches and to all of the varied activities of the school.

The Administration Building, the Schools of Commerce and Applied Design and the Large Auditorium have been so placed that they at once frame and preserve the ravine to which previous reference has been made. This is a spot of peculiar beauty and can be made still more attractive by the judicious planting of flowering shrubs and wild flowers. As will be observed, winding paths which follow natural grades, avoiding the trees, give access to all parts of the charming hollow.

A foreground has been provided along East Michigan street, preserving the present natural character of the landscape. The ground to the west of the Arsenal avenue entrance and south of the shops is beautifully modelled, descending to the stately grove of trees in the southwest corner.

It having been determined to provide for two Junior or Pre-vocational High Schools, it seemed wise to place them near the northerly and southerly boundaries, to serve the sections of the city nearest to each. Accordingly one has been located in the southeast corner of the grounds, near what has come to be a customary minor foot entrance, facing down the space just referred to as a natural foreground to the school on East Michigan street. Placed here it also screens off the view of the cafeterias to the east of the Liberal Arts Building. For the other Junior High School a site is selected not far from the present East Tenth street entrance to the northeast. Part of this site is now occupied by school gardens, but the land here is unsuitable and it is proposed to transfer them entirely to the flat open area to the West of Pogue's Run, admirably adapted to this purpose. To the north of the northeasterly Junior High School is a beautiful grove chiefly of magnificent beeches in which now stands an old house on a natural knoll. This is an ideal site for the Model House, where students may work out the daily problems of house-keeping in all its aspects.

Between the High School and the large Auditorium and on the longitudinal axis of the Stadium is suggested an Open Air Theatre seating about one thou-

sand persons, away from the noise of street traffic and in a natural hollow, backed by fine trees.

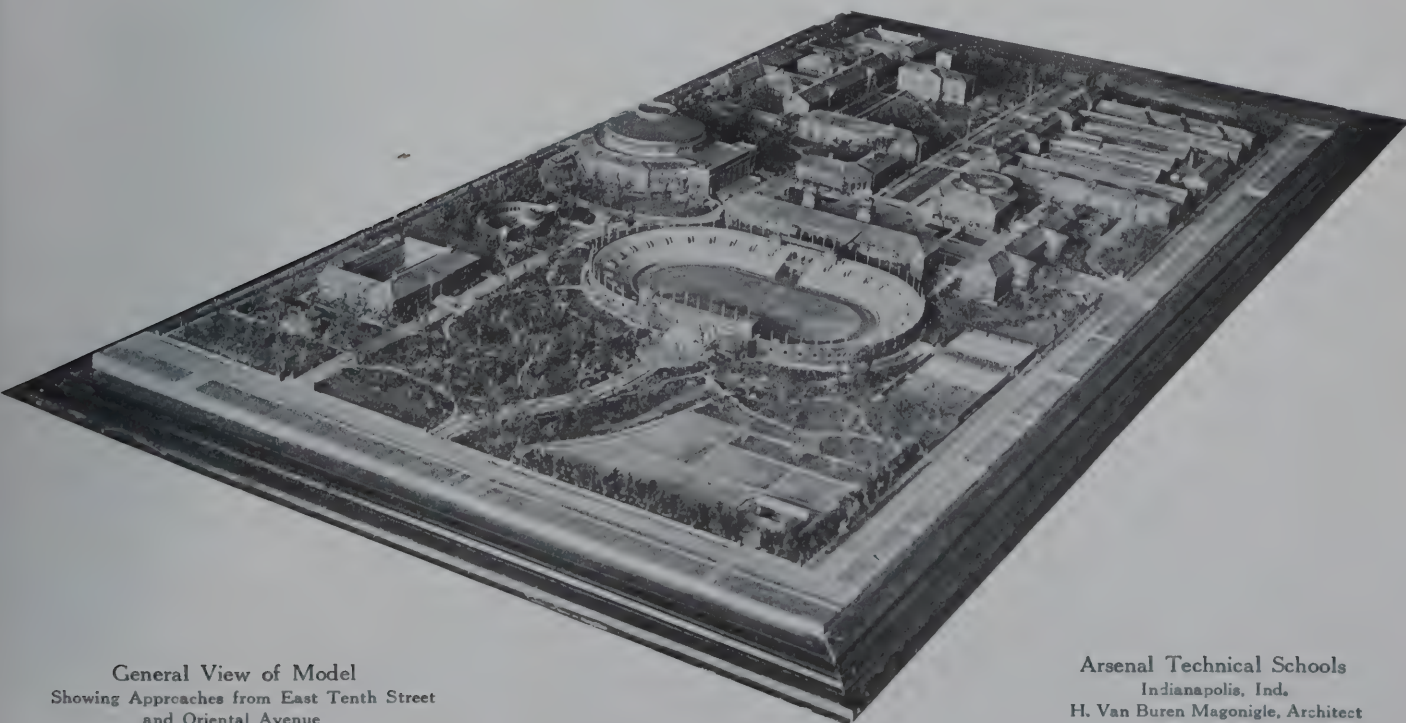
The residence and office of the Superintendent of Buildings and Grounds is placed to the right of the St. Clair street entrance, controlling the delivery of supplies to the shops and to the school in general from Oriental street.

Thus disposed, the natural grades are made use of to avoid excessive cut and fill and the native beauties of the property are preserved to the fullest possible extent. That portion of the grounds north of the Stadium lying between the entrance road from East Tenth street and Pogue's Run, an area of about five acres, is left entirely untouched, except for winding paths to render it accessible. Here are many fine beeches and a tangle of undergrowth which by proper thinning and trimming may be made into a wilderness of great beauty. On its westerly boundary, the banks of Pogue's Run should be planted with water-loving plants, trees and shrubs and made to contribute to awakening and maintaining a love of nature in the students. It is not enough to feed the mind and train the hand; the soul must be satisfied as well. This is especially true and important in a trade school where so much of the student's time is taken up in the study of mechanical pursuits. And the citizens of Indianapolis are to be congratulated upon the fact that such of their children as attend this school, during their most impressionable years will receive, more or less unconsciously, perhaps, impressions of beauty that will last them forever and go far by their benign influence to soften and enrich lives of toil and endeavor. The influence of beautiful surroundings during school days cannot be overestimated. It is

hard for the young to go to school at all. And if the school environment is ugly and forbidding not only is school obnoxious at the moment but the child in after years looks back with loathing instead of affection to his Alma Mater.

It is pertinent at this point to touch upon the architectural style adopted for the whole group and the materials proposed. We may assume that the general effect should be unified, that for economic reasons we must rely upon simple and inexpensive materials and that in view of the widely diversified nature of the buildings, ranging from the simple and utilitarian shops to the monumental character necessary for such a structure as the large Auditorium, the style to be adopted must be flexible. The brick and terra cotta architecture of Northern Italy presents all of these desirable characteristics. By its use, in the instance of any given building, we have at our command a wide range of possibilities of treatment from the period in which Italian Gothic merges into the Early Renaissance to the later and more sophisticated forms of the Renaissance itself.

The materials proposed are a rich dark brick, plain and moulded, running the gamut of several shades and producing the general effect of reddish brown; terra cotta of a tone to harmonize therewith and polychrome terra cotta for the sake of concentrated color spots where accents are required; and in certain places such as the frieze over the arches between the Gymnasium towers and the facade of the large Auditorium, sgraffito. For steps and colonnets and the like a dark stone similar to North River bluestone should be used. The roofs should be of red tile with a good texture and a range of shades.



General View of Model
Showing Approaches from East Tenth Street
and Oriental Avenue

Arsenal Technical Schools
Indianapolis, Ind.
H. Van Buren Magonigle, Architect

EDITORIAL COMMENT

Build Now With most of our architects desperately idle, with building quite at a standstill and with labor insistently clamoring for occupation, building conditions are so imperative that they cannot with safety be ignored, and we seem to be facing two distinct lines of conduct. One is to wait, sit back and bemoan our hard times, refuse to be the first to start new building, let the other man do it, and see nothing but disaster ahead. The other way is to pitch in, study economy and construction and planning, seek, if necessary, new methods and devices, be willing to take the first step, but above all to do it NOW. The first course means continued stagnation, increased labor complication, loss of confidence and of opportunity and of money. The second course means co-operation, the seizing of all possibilities at a probable profit to those who act promptly and intelligently, besides which it means serving the country in this, its desperate hour of need. These courses are now before the men of means and of those who control funds in banks, trust companies and otherwise, and who must be the first to offer relief. But the architectural profession has its manifest duty to present these possibilities in all their import for good and bad to their clients.

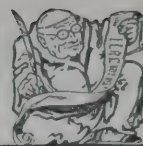
Now what are the real facts in regard to prices? Steel, which is fundamental in modern building operations, has been quoted at about \$60 a ton for mill orders fabricated and delivered. Within two years it has been as high as \$280 a ton. Cement has dropped in large lots to prices which compare very favorably with the prices of two years ago. Labor is uncertain, is demanding large compensations, but as yet has not had to meet the real test of supply and demand because there is plenty of the former and none of the latter. We know, however, by actual experience that labor is much more efficient than it was six months ago, that even at the higher wage scale, concrete, brickwork and masonry generally can be put in place at less cost than formerly, and there is every reason to see in the attitude of labor not so much a determination to take all the profits as a fear that there may be none at all. Once the new movement begins there will be no lack of hands to help at reasonable prices. As to terra cotta, one of the largest manufacturers made a statement that if he had any actual work to quote on he could give prices for delivery which would be a revelation to those who are dreading the high cost. Carpenter work is very high, but that cuts really a very small figure in the modern commercial building. A most careful survey of the market quite fails to justify the conclusions of some of the pessimistic statements which have done so much lately to impair the confidence of investors in the possibilities of the present market. It is the conviction of many that finished buildings of any magnitude will not vary more than ten or fifteen per cent from the average pre-war prices, and that by exercising

care in selection and minimizing the demands for the more expensive products, buildings of a certain size can be erected today at prices not above the average for the last fifteen years, while as against this rentals have advanced very materially. Office rents, for instance, which were considered high at \$1.75 per foot, now command \$2.15 under exactly similar conditions. Store premises which rented before the war slowly at \$5 to \$8 a foot, will now command \$7 to \$10, and a diligent comparison of actual returns from a number of commercial buildings shows that the advance in rents is from two to three times even the estimated advance in cost of building. This may be challenged by some whose opinions are formed by the scareheads of the daily papers, but one of the shrewdest real estate operators in the country made the statement within a week that investment conditions are now more favorable to large returns on building operations than they have been at any time since 1912, and that he was proposing to get into the game at once without waiting for the later rush of those who are too timid to read aright the signs of the market and to act thereon. That mental viewpoint which so many flatter themselves by calling conservative, but which is more often nothing but ignorance of real conditions or inability to measure them, is largely responsible for our present lack of building construction, but it also implies no small measure of unwillingness to admit the imperative obligation resting on capital to keep moving. Therefore, the statement that high costs preclude building now, ought to be effectively and promptly challenged by every architect who is interested in the welfare of the country; and we, as a profession, should make it our business to show at once by figures and by comparison that building is not in any sense prohibitive in price. We ought to make it our first duty to seek out and argue with all holders of capital and all investors that it is both their duty and their opportunity to build and to build now. Don't sit around looking serious, wise, or foolish, while complaining of the alleged impossible costs of building, but get busy and at least find out the actual conditions by obtaining actual bids in the market for actual work from actual plans, and all the indications are that the high prices bogey will vanish in thin air.

THE Information and Education Service of the Department of Labor announces under date of February 11 that a well known St. Louis architect writes: "I am firmly convinced that the one thing the building public wants to know is the cost of building today as compared to the next three to five years. If they could be assured that the cost will not drop within that time, there would be a tendency to proceed with the needed work." The Department is now seeking this information and will make it public when secured.



THE EDITORS FORUM



A PROBLEM that always has a special appeal for architects is made the feature of this issue. This is the farm building group and the illustrations presented herewith show how extensive in many cases these groups are and what a great variety of architectural treatment is possible in their design. The farm group presents opportunities for composition, attractive roof lines and picturesque settings unequalled in any other type of building. In no less measure does it demand a specialized knowledge of planning and equipment details, for the arrangement of a cow stable, poultry house or any other farm building is as important in determining success or failure of the farm as a factory building is to the industry it houses. Planning a farm group, therefore, can only be done satisfactorily after a thorough acquaintance with plans of administration, knowledge of the habits and requirements of the various domestic animals and the appliances and equipment in common use in farming.

Farm buildings are of special interest at this time, because of the greatly increased attention paid to farming since our experience in war. Agriculture was the one industry that was speeded up throughout all sections of the United States. No farm was too small or too far removed from the centers of activity to feel the call for greater production that the war made necessary, and there was, as a result, a rejuvenation of farming firmly established, that will prove one of the great and lasting benefits of the war. It has been made clear to us that no country can be great if the tillage of the soil is neglected, and when it is realized that for a number of years to come, many of the European countries, badly devastated by war, will be dependent on us for food products, the necessity of great agricultural resources is apparent.

Our farms need new buildings, many new farms will be established, in fact a great revival of agriculture will probably be the most outstanding characteristic of our reconstruction period. Federal aid may be given the returned soldier to take up farming after some such method as Secretary Franklin K. Lane proposes for the use of cut-over and swamp lands. This whole move-

BOSTON SOCIETY OF ARCHITECTS

RESOLUTIONS ON THE DEATH OF

ARTHUR DURAND ROGERS

RESOLVED: *That the Boston Society of Architects has learned with deep regret of the death of Arthur Durand Rogers and desires to place on record its appreciation of his valuable service in the stimulation of good architecture in this country.*

Although not specially trained as an architect, his keen perception of the fundamentally true and beautiful in the building art permeated the publications with which he was identified and these became a source of inspiration and education to the profession.

His genial personality and uniform courtesy won for him the respect and friendship of all with whom he came in contact. In his death many architects throughout the United States will feel a sense of sorrow and the profession as a whole a loss not easily retrieved.

RESOLVED: *That these resolutions be spread upon the records of the Society and that copies be sent to Mr. Rogers' family and to his business associates.*

ment is one of great interest to the architectural profession and an active participation by architects in any attempt to improve the character of American farm buildings should show wonderfully satisfactory results. Architects have for many years planned well equipped farm buildings for the large private landowner who farms for the pleasure of it, but just as the workingman has never enjoyed the advantages of a dwelling house to which an architect has given thought, so the farmer has accepted the country mason's or carpenter's building and counted himself lucky. He now feels the need for better constructed and planned buildings and because of the unparalleled prosperity he has recently enjoyed, is in better financial circumstances than ever before, to make invest-

ments in better and larger buildings. It is the architect's present opportunity and duty to provide for the farm not only buildings of practical utility, but of attractive architecture as well.

THE need that architects have long felt for better training to equip the members of the crafts on whom they must rely for the actual execution of the plans they conceive, is promised a measure of fulfillment in the first unit of the National Apprentice Schools of Design soon to be established in New York.

The sponsors of the movement are the Architectural League of New York, American Institute of Architects, National Academy of Design, and manufacturers whose products are dependent on the arts and crafts. The project has been advanced by constructive work of the Architectural League, with which the other organizations have enthusiastically co-operated. This assures the schools, which will be established in all centers where there is need for them, a powerful artistic support never accorded any similar enterprise. The promise of good results is indicated by the intention to employ only those men for instruction as are actively engaged in the practical pursuit of their craft. At the start classes will be held only in the evening, but as soon as practicable day sessions will be held also. Instruction will be free, but there will be a small matriculation fee per season.



Varnish Specifications

In architectural work, wood finishing operations are not commenced by the painter, but by the architect.

Definite specifications are therefore essential in order to shut out the use of inferior or inappropriate finishing materials and insure a handsome, lasting finish.

The laity knows comparatively little in a practical way about varnish, and the appearance of a fine interior can easily be ruined by improper treatment or materials in the finishing process.

There is no surer preliminary step to perfectly finished woodwork, floors, walls and ceilings, than the specification of Berry Brothers' varnishes, stains and enamels.

BERRY BROTHERS INC.
 World's Largest Makers
 Varnishes and Paint Specialties

Detroit, Michigan

Walkerville, Ontario

(742)

Liquid Granite
 FLOOR VARNISH

Luxeberry
 WHITE ENAMEL

THE ARCHITECTURAL FORUM

VOLUME XXX

NUMBER 3

CONTENTS for MARCH 1919

PLATE ILLUSTRATIONS

	Architect	Plate
RECENT FARM BUILDINGS OF		
COMMODORE FRED BOURNE,		
OAKDALE, L. I., N. Y.	<i>Alfred Hopkins</i>	33, 34
ADOLPH MOLLENHAUER, ESQ.,		
BAYSHORE, L. I., N. Y.	<i>Alfred Hopkins</i>	35, 36
MORTIMER SCHIFF, ESQ.,		
OYSTER BAY, L. I., N. Y.	<i>Alfred Hopkins</i>	37, 33
ANSON W. BURCHARD, ESQ.,		
LOCUST VALLEY, L. I., N. Y.	<i>Alfred Hopkins</i>	39, 40
EFFINGHAM LAWRENCE, ESQ.,		
COLD SPRING, N. Y.	<i>Alfred Hopkins</i>	40, 41
GLENN STEWART, ESQ.,		
LOCUST VALLEY, L. I., N. Y.	<i>Alfred Hopkins</i>	42, 44
J. C. BALDWIN, JR., ESQ.,		
MT. KISCO, N. Y.	<i>Benjamin Wistar Morris</i>	45
MESSRS. L. & R. W. JOHNSON,		
CROYDEN, PA.	<i>Duhring, Okie & Ziegler</i>	46
FELIX M. WARBURG, ESQ.,		
WHITE PLAINS, N. Y.	<i>Elisha Harris Janes</i>	47, 48

LETTERPRESS

	Author	Page
VIEW OF LOWER BROADWAY, NEW YORK CITY.	<i>Frontispiece</i>	
THE EDITORS' FORUM		19
BUILDINGS FOR THE MODERN FARM		
Part I. Group Planning and Design of Major Buildings.	<i>Elisha Harris Janes</i>	63
SOME RECENT FARM BUILDINGS FROM THE		
DESIGNS OF ALFRED HOPKINS, ARCHITECT.		75
THE COTTAGE PLANNED ORPHANAGE,		
Part II. Details of Cottages and Accessory Buildings.	<i>Harold C. Whitehouse</i>	77
A BRICK COTTAGE AT SUMMIT, N. J.		82
Howard Major, Architect.		
THE ARCHITECT OF THE FUTURE...C. Stanley Taylor		83
Part III. The Client and His Problem.		
CONSTRUCTION PROBLEMS		
Rebuilding the Custom House at Boston, Mass.	<i>N. A. Richards, Assoc. Mem. A. S. C. E.</i>	87
ARTHUR DURAND ROGERS.	<i>Ernest John Russell</i>	91
An Appreciation of the Man and His Work.		
EDITORIAL COMMENT		92

Published Monthly by
ROGERS AND MANSON COMPANY

85 Water Street, Boston, Mass.
Advertising Department, 42 West 39th Street, New York

Yearly Subscription, payable in advance, U.S.A., Insular Possessions and Cuba \$5.00
Canada \$5.50 Foreign Countries in the Postal Union 6.00
Single Copies 50 cents All Copies Mailed Flat

Trade Supplied by American News Company and its Branches. Entered as
Second Class Matter, March 12, 1892, at the Post Office at Boston, Mass.
Copyright, 1919, by Rogers and Manson Company



VIEW OF LOWER BROADWAY, NEW YORK CITY
From Photograph by John Wallace Gillies

The Architectural Forum series of distinctive architectural street compositions in New York City. The Singer Tower and City Investing Buildings are shown in silhouette at left and Park Row Building and old Post Office at right.

THE ARCHITECTURAL FORUM

FOR QUARTER CENTURY THE BRICKBUILDER

VOLUME XXX

MARCH 1919

NUMBER 3

Buildings for the Modern Farm

I. GROUP PLANNING AND DESIGN OF MAJOR BUILDINGS

By ELISHA HARRIS JANES

MUCH has been written about the large farms, or, rather, estates, of this country, those of the gentleman farmer about which we have all heard the story of a quart of milk costing the same as a bottle of champagne. Little attention, however, has been paid to the smaller farms belonging to those who cannot afford to lay out a large series of buildings just to decorate the landscape, or to those who can only build that which is necessary, whether it be for their business, to assist in the expenses of the household or to enjoy the modest pleasure of creating for themselves. It is to the modest farmers that attention must be turned to assist in improving their farms or estates, however small, in a manner in keeping with their means, yet in harmony with the surroundings, and to prevent them from erecting uninteresting, ordinary, box-like barns and sheds, in order that our view of the farm buildings may be a pleasure. The American is beginning to realize that he owes it to his neighbor as well as himself to have his individual surroundings attractive as well as practical.

What is to be the effect on the many country boys who have spent a year or more in France or Italy with the troops? Many of the buildings there have been devastated beyond imagination, but still enough remained of the farm buildings, dove cotes, gate lodges, etc., each with its individual charm and beauty, for them to appreciate, and from which they have received undoubted impressions. How can they return without being influenced by these buildings, that have a touch of beauty and charm no matter how plain they are or to what simple use they are put, and above all, blend perfectly with the surroundings? Will it not have some of the effect that the campaigns of Charles VIII and Louis XII exerted on France, removing her medieval tastes and acquainting her with the renaissance; or the memorable expedition of Francis I which awoke in the French the desire of rivalling Italy in her artistic career? Let us hope it will, and that when the silo is to be built the coming farmer will think of Normandy, or if it is to be a barn, he will recall the one he was billeted at and take out his snapshots and say to his dad, "Let's have something like that." If this happens it will be at least one benefit derived from our participation in the war.

Some one has said the most important crop raised on a farm is the children. Why, then, is it not most important to have buildings and surroundings express neatness, taste and harmony in order to procure the proper psychological influence? Environment in all cases has a subconscious but potent effect, and on the farm it is of special value in providing a strong attraction to keep the boys contented with farm life.

The agricultural colleges are improving this work considerably by their literature and reading courses that are distributed free. They are increasing the desire to improve the farms but, unfortunately, not always with the best of taste. Good buildings do not necessarily mean expensive work. So often we see where a farmer has spent considerable money to enhance his buildings or home, but his advice has come from his neighbor who was a plumber last week, an architect this week, and probably the mason next week. Can we wonder at the results? It would be a great boon if the agricultural colleges would have in their curricula a course in architecture sufficient to mould the taste of the students to some degree. Already in France the government is issuing typical designs of all classes of farm and village buildings, made by their best architects, to give the owners practical help, to hold their tastes and to insure the retaining of the charm of the villages that have been wiped out by the war.

The greatest influence towards better buildings (another triumph for the advertiser) is that given in many catalogs published by the building material and supply companies, especially in the interests of cement and terra cotta. Each issue of these improves from the standpoint of taste. When we look at the hideous drawings shown in the past (and they were about the only pictures the rural districts saw of model barns, silos, water troughs, etc.,) how could we expect the tastes of these people to improve? If the catalogs would illustrate good designs, show in contrast the typical country carpenter's building, practical from a utility point only, and the same plan adapted to the same use but with some thought of taste and composition in its design, followed by a comparison of respective costs, using the same materials, there would soon develop an increased

demand for material, and the farmer would begin to realize the value of taste.

The increasing cost of wood, the cost of upkeep in repairs and painting, and the high rates in insurance have influenced a change in materials, and as is usual when changes occur due to conditions, the adjustment develops for the better. The terra cotta and concrete block, with or without stucco, not only provides an economical benefit by the saving in upkeep and lessened fire risk, but gives a texture and charm, exceptionally fitting to buildings located in rural settings. Cement as a material also assists when we follow the influences from France and Italy.

As these ideas apply to the farmer so do they to him who farms for pleasure. Both will profit thereby, the former in having pleasing surroundings in which he is forced to live, and the latter, by increasing his pleasure in the knowledge that he has housed his animals well and is assisting and perhaps improving nature. For the architect the variety of shapes and requirements of the buildings give him a most interesting problem.

One fault in the disposition of our American farm buildings is that they are too scattered. It is difficult to find a reason for the location of some of them, unless they were placed where the largest pile of rocks happened to be when foundation work was begun, because of the consequent saving in labor. It takes little thought to realize that a grouping of the buildings is going to give the most practical results by the simplification of labor, by the saving of steps in carrying supplies, the concentration of drainage, the centralization of foods, and the practicability of all operations being easily supervised. As to the architectural side, consider what splendid and varied

material the architect has to work with for almost any style or type of architecture, from that with the formal axis to the most rambling, and from classic to the wildest picturesque. For the large mass or central feature, the hay barn may be as imposing or small as one wishes and almost any shape; for the long lines there are the cow barns, farm stables, and poultry buildings; for the corners and accentuating points there are the silos and water towers which can be round, square, octagonal, high and thin, or low and broad. There are also buildings for the bull pen, the dairy and the farm hands, and as many courtyards as one wishes with always plenty of long sheds to tie them together.

Several groups are published in this issue which show that at last this phase of American architecture is improving. As an incident in showing the value of well designed farm buildings, the case of the buildings for Jacob Schiff, Esq., at Redbank, N. J., may be cited. When the neighbors on the Rumson Road heard that farm buildings were to be erected between that famous road and the Shrewsbury River, directly in line with their fine views, they were ready to rebel, but soon were contented when they saw the buildings illustrated herewith, and admitted that they improved the landscape. Here the problem was to keep the mass as low as possible, as the group is located in an open, flat field. It shows there is nothing to fear in letting these buildings express the purpose for which they are to be used, and that it is not necessary to attempt to masquerade a farm building as a house. This is a simple group arranged symmetrically, the hay barn with a driveway through it as the central feature, and the long, low wings on either side the cow barn and sheepfold. The projecting arms are,



View of Farm Buildings of Jacob Schiff, Esq., Redbank, N. J.

Elisha Harris Janes, Architect



View of Buildings of Jacob Schiff, Looking Across Farm-yard

on one side, the wagon shed and tool house, balanced by the gardener's cottage opposite. Attention is called in this last building to the manner in which the water tank is housed in the tower by repeating a feature of the tea house placed nearer the water. In the latter the tower is for a children's play room. This group is a splendid example of what can be done on simple lines. It would be difficult to make a less expensive plan for the same accommodation.

The group for Otto Kahn, Esq., at Cold Spring Harbor, L. I., is a straightforward, symmetrical plan in Colonial farm style with the silo giving just enough relief to prevent the group appearing too formal. Here the stable, wagon space and cow barn, with the hay and feed above, under one large roof, form the main and central feature. The wings are formed by the wagon shed on one side tied to the main structure with a fence, and on the other side the dairy building connected to the main building with a colonnade, all enclosing a courtyard which is to be extended when the help's and superintendent's cottages are added to the wings.

The buildings for James A. Burden, Esq., at Syosset, L. I., are more of the southern farm type. There is a smaller center feature of the cow barn with the hay loft over it. Here again the silo is valuable in relieving the severity and tying the stable wing to the main building. One wing is formed of the stables with the wagon shed connecting and to the latter is added the blacksmith shop and tool house. The other wing consisting of the dairy building and help's cottage is rightly disconnected with the cow barn, yet is in symmetry with the opposite wing. As in the other groups, they all form a large courtyard.

In the buildings at Cold Springs, N. Y., the architect has played with the units to his heart's content and evolved a most interesting result. The photograph reproduced was especially well timed in recording the taking in of the hay and the preparation for

filling one of the silos. A second silo is disguised in the gable at the extreme left.

Public education has shown the public that all food should be produced under the most sanitary conditions, and that the care of all animals should be likewise sanitary to give most satisfactory results. There is, therefore, little difference between the requirements of the farm for market and the gentleman's farm except in the finish of exterior, style of maintenance and the cost of equipment. But on the principle that "the best is the cheapest" the last may be eliminated, and after all, if the considerations which influence the "producer for profit" are followed, the best plans will evolve.

Requirements relating to use of space and equipment apply in general to both types. Few realize how many items are to be considered when planning even a small farm. Whether provision for some requirements can be grouped in one room or must have separate space allotted, depends on the size of the farm, what it is to produce, in what quantity and of what quality the product is to be. As a guide or reminder the following requirements are given.



General Plan of Farm Buildings of Jacob Schiff, Esq.
Redbank, New Jersey
Elisha Harris Janes, Architect



GENERAL VIEW OF FARMHOUSE AND BARN



VIEW OF ENTRANCE SIDE OF FARM BARN

ESTATE OF ROBERT S. BREWSTER, ESQ., MT. KISCO, NEW YORK
DELANO & ALDRICH, ARCHITECTS

STABLE

Stalls
Box Stalls
Paddock
Grooming Room
Manure Pit
Bedding Balcony
Feed Room
Hay and Straw Loft
Carriage Room

Inside and Outside Wash
Carriage Shed
Toilet
Groom's Room
Blanket Room
Robe Room
Harness Room
Harness Cleaning Room
Boiler Room

GARAGE

Car Room
Implement Room
Car Pit
Repair Room

Supplies
Liveries
Robe Room
Oil Storage

FARM STABLE

Stall Room
Grooming Room
Harness Room
Manure Pit
Bedding Balcony
Feed Room
Hay and Straw Loft
Wagon Room

Wagon Shed
Wash
Farm Machine Shed
Spare Parts Shed
Tool Room
Shop
Forge Room
Ventilation

COW BARN

Milking Cows
Milking Room
Dry and Young Stock
Calving Pen
Bull Pen
Bull Run
Isolation Room
Feed Room
Silo
Silo Engine

Bedding Balcony
Vents
Manure Pits
Manure Trolley
Utensil Room
Cow Yard
Shelter and Windwalls
Watering Trough
Feeding Floors
Hay and Straw Room
Ventilation

DAIRY

Covered Passage
Milk Room
Separator Room
Refrigerator
Ice Room
Butter Room
Washing Room
Sterilizer Room

Bottling Room
Porch for Cans
Laundry
Dryer
Boiler Room
Lavatory
Shipping Room
Office

HAY BARN

Driveway
Ventilation
Feed Bins

Racks
Hay Fork and Trolley

SHEEP BARN

Sheepfold
Lambing Pens
Feed Room
Feeding Floor
Dipping Vat

Shearing Room
Winter Yard
Shepherd's Room
Root Cellar
Rams' Pens
Heat

KENNELS

Feed Room
Kitchen
Wash Room
Straw Room

Lodging Room
Short and Long Runs
Shelter
Heat

CHICKEN HOUSE

Laying Hens
Cockerels
Brooder House
Feeding Passage
Feed Room
Killing Room
Cleaning Room

Shipping Room
Egg Room
Incubator Room
Testing Room
Boiler Room
Runs
Shade

DOVE COTE

Tiers of Nests
Inside Screened Area
Feed Room

Killing Room
Cleaning Room
Packing and Shipping
Runs

GREENHOUSE

Plant Room
Potting Room
Shipping Room
Hotbeds
Cold Frames

Garden Tools
Fruit Storage
Sorting Room
Packing Room

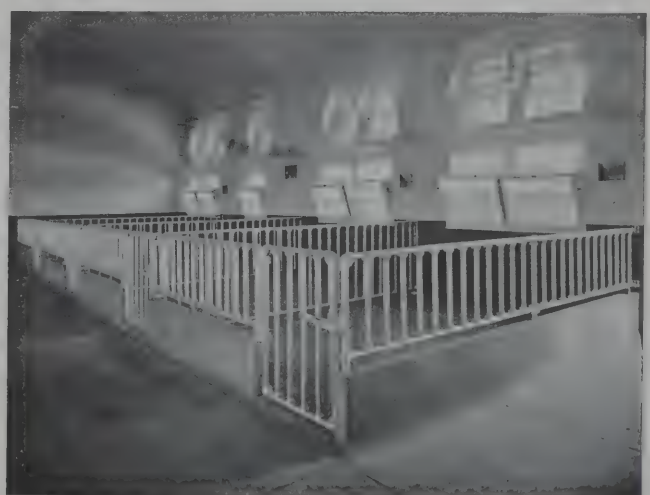
MISCELLANEOUS BUILDINGS AND EQUIPMENT

Saw Mill
Well House
Spring House
Wood Shed
Corn Crib
Dipping Vats
Garbage Disposal
Sewage Disposal
Pump House
Acetylene Gas Plant
Tank
Wind Mill
Dam for Waterpower
Hydraulic Room

Ice House
Laundry Building
Slaughter House
Smoke House
Manure Pits
Mulch Pits
Root and Vegetable Cellar
Bee Cellar
Fruit Cellar
Mushroom Cellar
Preserve Cellar
Preserving Room
Fruit Drying Room



Interior of Cow Barn, showing double line of stalls arranged for cows to face one another



Interior of Cow Barn, showing advance registry stalls
Calving pens are similar

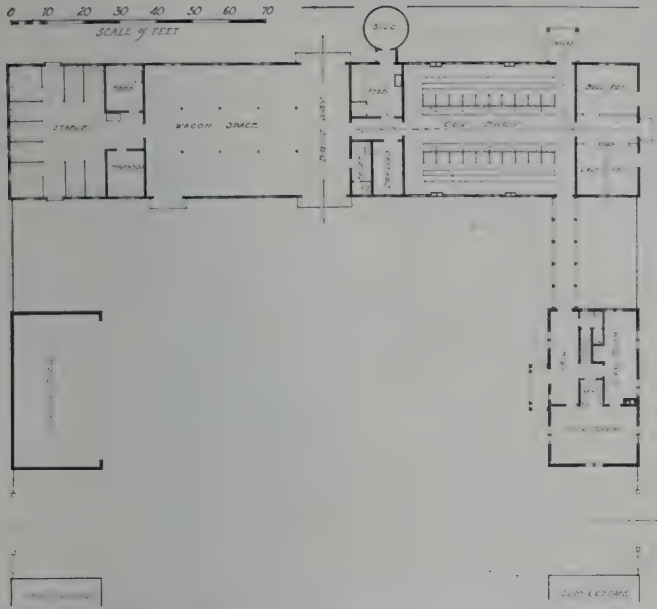
Alfred Hopkins, Architect



VIEW OF FARM BARN SHOWING PASSAGE TO DAIRY



GENERAL VIEW OF FARM BARN FROM COURTYARD
FARM BUILDINGS OF OTTO H. KAHN, ESQ., COLD SPRING HARBOR, LONG ISLAND, N. Y.
DELANO & ALDRICH, ARCHITECTS



First Floor Plan of Farm Buildings of Otto H. Kahn, Esq.

Unfortunately experts still disagree on many points and the architect will find himself in many difficult positions. The superintendent of the farm will have his fixed ideas on many details and what has proved successful at one farm will be much frowned upon by the superintendent of another. However, does this list not open the eyes of the tyro farmer and make him realize that this is not a problem to be lightly undertaken, and the architect that it is worthy of very serious study?

The stable is fast passing and only those who keep show or saddle horses worry much about this building, for the farm stable is taking its place. As horses are still necessary for the tilling of the soil, and probably will be for many years, much more attention is being paid to it, and the farm horses are now beginning to taste a little of the luxury previously devoted only to the carriage and saddle animals. The requirements are very similar to those for the stable except that the accommodations for farm wagons, machines, etc., are different from those for carriages. Much of this is provided for in sheds. It is quite important that whenever possible, a door on both front and rear be provided so that the wagons may be driven through the barn, obviating the turning and backing of the cumbersome vehicles.

The garage is too often a temporary shed stuck in some handy place giving it undue prominence that spoils many otherwise pleasing groups. In many cases it looks as if all the money had gone for the car and nothing was left for the housing of the silent steed. It is not only more agreeable but more economical to have it well housed,—and in a fireproof or fire-resisting building, so separated from other buildings that a fire can be easily confined within it. To this building should be added a room for the motor-driven farm implements, the use of which is increasing each day.

The hay barn is very often combined with the farm stable or the cow barn or with both; but many prefer to have it separate, in which case, on account of its size, it is usually made the central feature of a group. Hay should not be stored above the animals unless the floor is dust tight. The principal necessities for the hay barn are the driveway through the building and the framing to hold the stacks of hay in place. Some arrange this framing to allow the



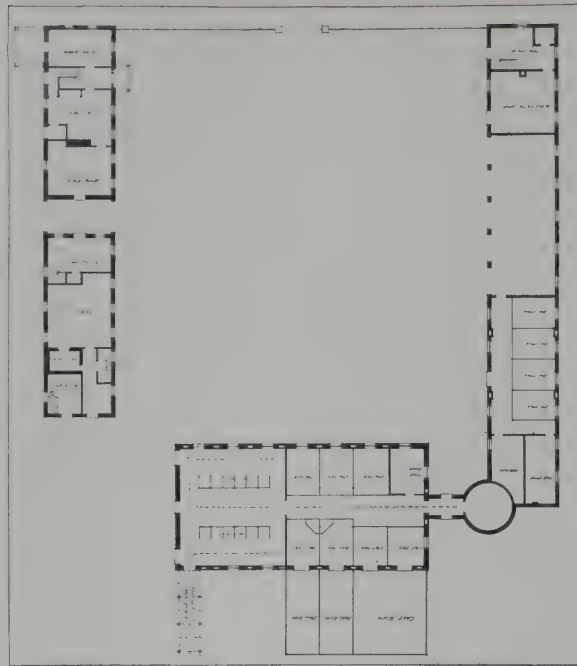
Detail of Silo and Farm Barn of Otto H. Kahn, Esq. Cold Spring Harbor, Long Island, N. Y.

Delano & Aldrich, Architects

storage of wagons under the hay. It is well to have some ventilation in the loft as hay heats easily. If a large quantity is to be stored, hay tongs and trolley are necessary.

The cow barn is the most important building and is about the only farm building that has been previously discussed to any extent.* It is accepted that it is bad practice to house cows with other animals in the same building without having them well separated, and in many states the dairy regulations prohibit the practice entirely. The buildings for Messrs. Kahn and Brewster at Cold Spring Harbor and Mt. Kisco, respectively, show very good solutions of the problem presented by this combination. A large wagon room with driveway is placed between the horses and cows, and by using the space over the wagon room for the hay and feed, the farm stable, hay barn and cow barn are thus combined.

The ventilation of the cow barn is very important and not an easy problem. The majority of experts believe the health of the animal is greatly improved by proper ventilation and many devices have been arranged, probably the most efficient being the King system. In one of the government experimental stations, it

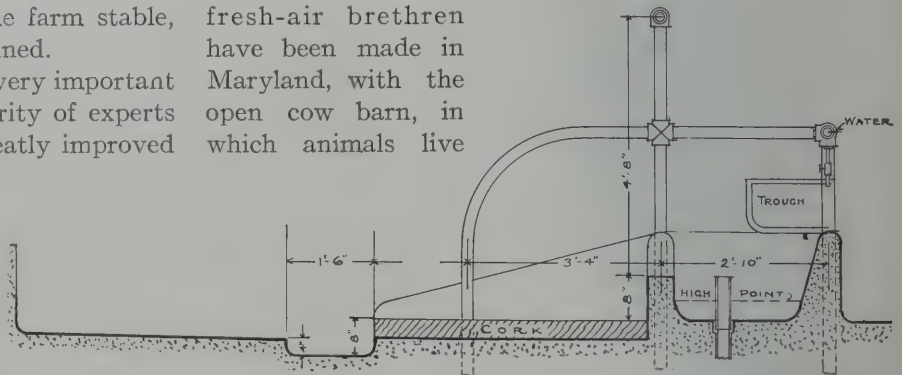


First Floor Plan of Farm Buildings for J. A. Burden, Esq., Syosset, Long Island

was shown that animals confined in a closed stable with absolutely no ventilation still thrived and gained weight, the only difficulty being that of condensation, a difficulty many have experienced, and at first thought was caused by a leak, or moisture, coming through the wall. For this reason at least, all agree it is necessary to have some ventilation. The greater danger is in not having it properly regulated so that a sufficient amount of the animal heat is retained in cold weather to prevent the animals getting chilled. The ventilation in a frame building is not of as great importance as in a masonry

one, for there are many leaks through which air may enter. Good sunlight is of greater value in the cow barn than ventilation and should always be sought.

Successful experiments which might appeal to our fresh-air brethren have been made in Maryland, with the open cow barn, in which animals live

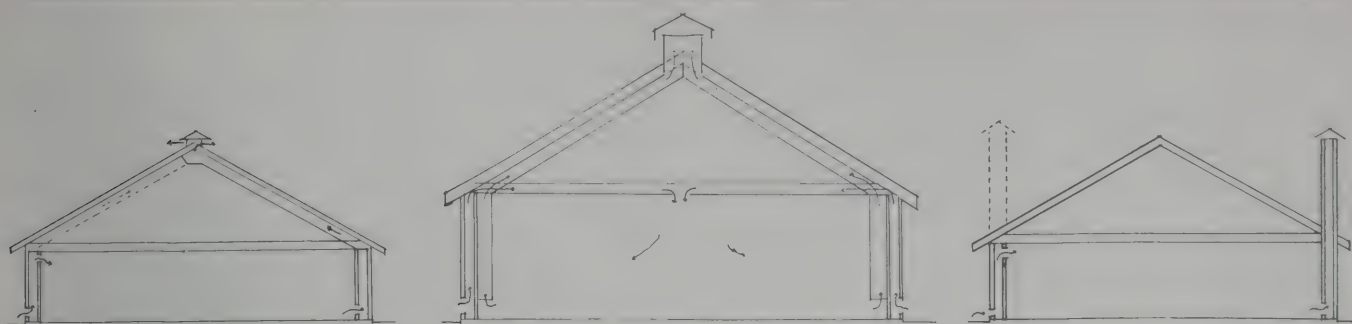


Detail of Cow Stall Showing Pipe Rail Stanchion Frames used for Water Supply to Individual Troughs

*See THE BRICKBUILDER, March, 1914.
"Modern Farm Buildings," by Alfred Hopkins.



Elevation of Farm Group for J. A. Burden, Esq., Syosset, Long Island, N. Y.
Delano & Aldrich, Architects



Use of ventilators at peak of roof. Intake and outlet ducts alternate on each side of the building.

Method by which the fresh air enters from ceiling. Allow 60 cubic feet of air per minute for each cow.

One method of installing King system of ventilation. Intake and outlet ducts alternate on each side.

Diagrams Showing Methods of Ventilation for Cow Barn

the year round. The sides are built up to about five feet high, except the one toward the prevailing winter wind where the milk room is placed. The only serious objection to the scheme seems to be the discomfort of the farm hand in cleaning and milking in the freezing temperature, but it should please the "ventilation fiend." The operators are very enthusiastic about it. It requires less labor, and, according to the records, produces better results. The milk room may be heated a little above freezing, provided the cows are not allowed to remain in the room very long.

For the health of the animals it is preferable to have the milk cows, dry cows, heifers, calves and bull in different rooms. Whether the cows should face each other or be back to back is a matter of preference. In either case a trolley for manure and feed is of great convenience. The Burden plan shows an attractive method of concealing this unsightly necessity by a pergola through which the trolley passes to the manure shed some 200 feet away. An exercising space should be arranged for the bull. This may be accomplished by tying the bull to a long pole on a swivel, or by a trolley wire as in the Warburg farm. This latter has the advantage that the bull may go both in and out of doors. If he is to be allowed freedom, the enclosure should be of very substantial construction. A cow yard or exercise lot is important and should be arranged on the warm side of the building. A wind wall is a good addition to the yard, and greatly adds to the appearance. There should also be some shelter and a watering trough. A portion of the yard arranged as a concrete feeding floor is of great economic value. It consists only of a concrete floor, prevents the fodder from being trampled into the earth and saves all manure.

The silo fortunately has come to stay. Fortunate not only for its value as a container for ensilage, but as a decided asset to the design of the groups. In most of the illustrations one may be seen and in each case the grouping would suffer with its absence. It is not necessary, however, to separate it from the main building; it may be inside if desired. The use of a silo increases the value of the corn crop about thirty

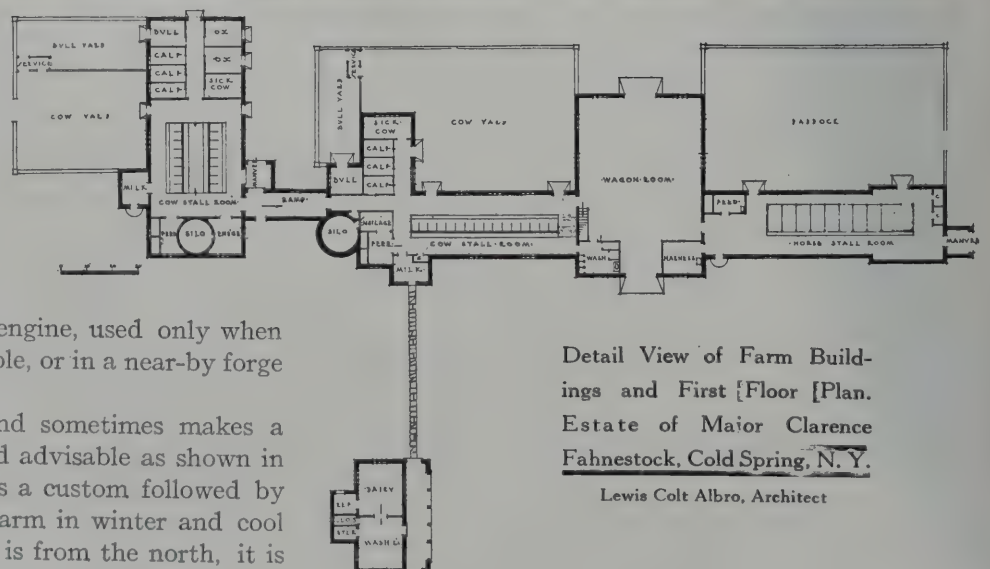


Silo and Granaries, Farm Group at Glen Isle, Chester County, Pa.
Wilson, Eyre & McIlvaine, Architects



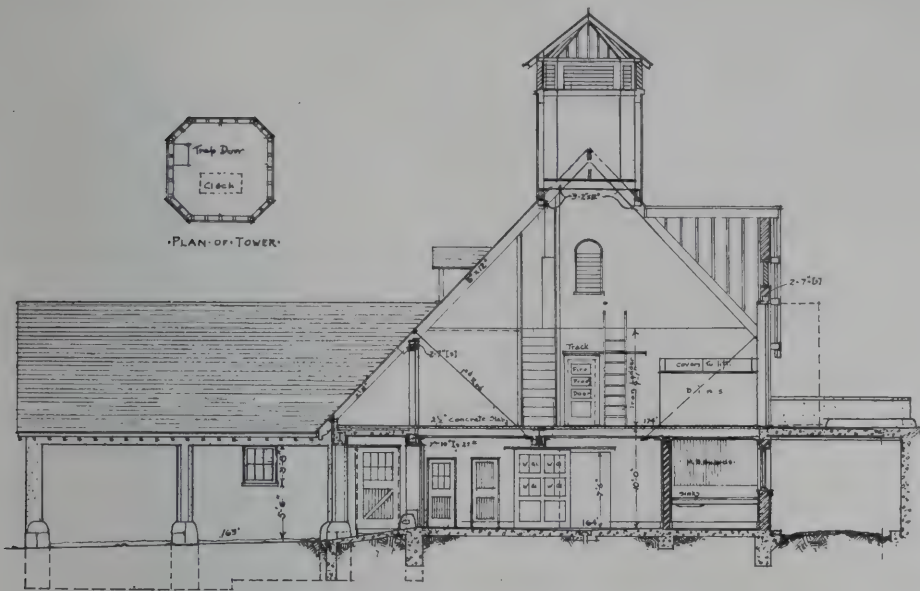
per cent. The height is usually about two and one-half to three times its diameter. The floor should be of concrete and connected to a drain. On account of the odor of the ensilage, it is advisable to have the silo separated from the building or feed room by an anteroom. The engine, used only when filling the silo, may be portable, or in a near-by forge or shop room.

The contour of the ground sometimes makes a "bank barn" economical and advisable as shown in the barn at Mt. Kisco, and is a custom followed by many farmers, as they are warm in winter and cool in summer. If the approach is from the north, it is



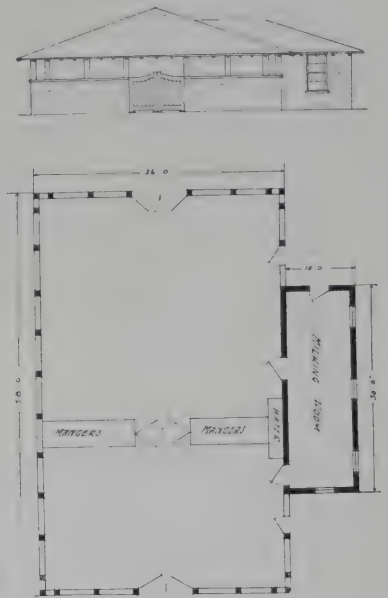
Detail View of Farm Buildings and First Floor Plan.
Estate of Major Clarence Fahnestock, Cold Spring, N. Y.

Lewis Colt Albro, Architect



Cross Section through Farm Barn at Mt. Kisco Showing Bridge to Bank
Method of Framing and Large Hay Storage Space.

Benjamin Wistar Morris, Architect



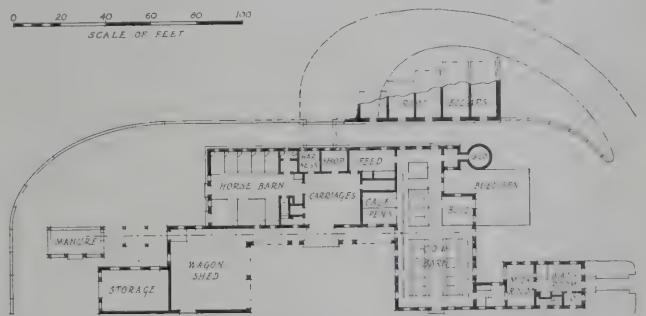
Plan and Elevation of Open-air
Cow Barn at Maryland Agri-
cultural Experiment Station.

just as well to have the inclined drive against the wall, otherwise it is preferable to have the building set back from the bank and connected to it by a bridge, the space under which will allow of better ventilation in the basement and makes a good temporary shelter. In the former case, the space under the run would make a good root, vegetable or mushroom cellar. In the barn at Mt. Kisco a particularly good working arrangement has been secured in its plan. The silo, and root cellar, which has been built into the bank extending as far as a rock formation permits, adjoin the feed room. Here the roots are ground and a direct line for the feed leads to the aisle between the cows. A similarly direct line is provided for the manure trolley. At the other end of the barn, on the second floor, sleeping rooms are provided for the men, and due to the height of the roof, hay storage space is afforded over them. A small balcony adjoining the men's rooms furnishes a comfortable spot for summer evenings.

SKETCH FOR THE
WEATHER VANE
ON THE FARM
BUILDINGS



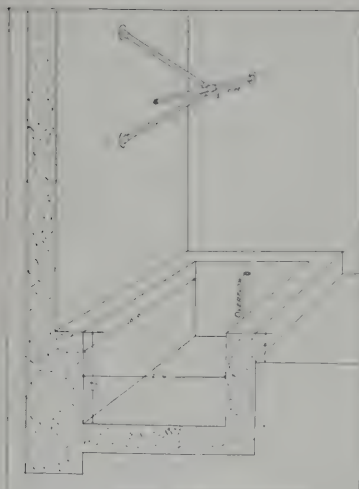
The dairy, called by some "the factory of the farm," is where sanitary arrangements count for more than anything else. Milk is so easily tainted by odors, it is important to have the dairy disconnected in



First Floor Plan of Farm Barn at Mt. Kisco, N. Y.



View of Bank Side of Farm Barn, Estate of J. C. Baldwin, Jr., Esq., Mt. Kisco, N. Y.
Benjamin Wistar Morris, Architect



Cooling Tank for Milk, Showing Pipe Rail to Assist in Raising Cans of Milk

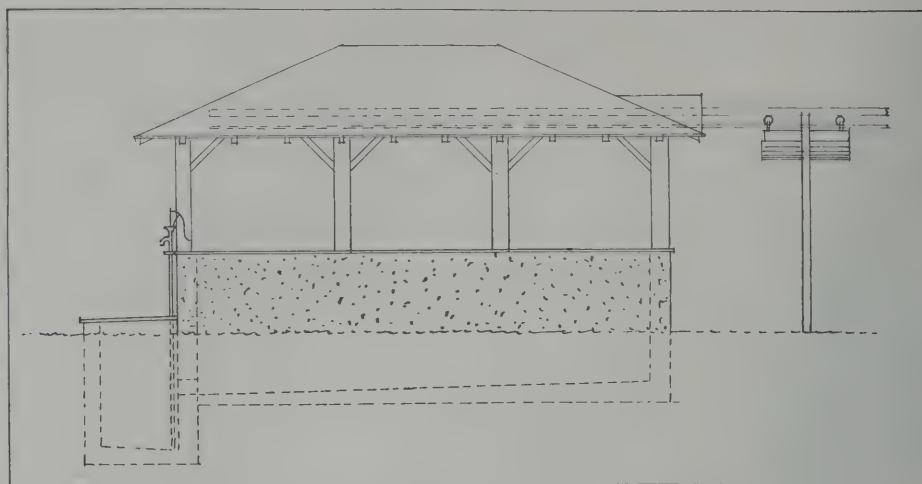


Diagram of Manure Shed, Showing Conveyor, Urine Pit and Pump
Details by Elisha Harris Janes, Architect

some way from the barn, even if only by an open air passage or loggia, as shown in the Warburg group. Many states have regulations stating the distance the dairy should be from other buildings. The arrangement of the rooms is of little importance if convenient. This building should have heat, hot water, and, if possible, live steam for washing the cans. A porch off the wash room where the cans may be dried in the sun is useful if it faces the south. The refrigerator is more practical if filled from the outside. In many places you may still find the old method of keeping the milk cool by standing the cans in water troughs or in the well, especially when it is difficult to obtain ice. It is a good method of cooling if there is

sufficient running or spring water to keep a low temperature. In this case, a trough is built of concrete deep enough in which to set large milk cans, and provided with an overflow pipe similar to the diagram shown herewith.

An economy practiced by some practical farmers is to have the skimmed milk from the separator run directly to the cow troughs for the cows. An owner of a large farm in Delhi, N. Y., claims he has made a saving of twenty per cent in the keep of his cows through this method. If it is to be wasted, special arrangements should be made in the disposal plant, because sour milk is apt to give trouble if allowed to run with the other sewage.

(To be continued)



General View of Farm Buildings of Effingham Lawrence, Esq., Cold Spring, N. Y. Group at Right Comprising Dog Kennels and Farmer's Cottage, designed by Alfred Hopkins. Farm Barn in Center and Wagon Shed at Left Designed by Foster, Gade & Graham



GENERAL VIEW SHOWING SILO AND WATER TANK ADJOINING COW STABLES



DETAIL VIEW OF DAIRY AND FARM BARN
ESTATE OF COMMODORE FRED BOURNE, OAKDALE, LONG ISLAND, N. Y.
ALFRED HOPKINS, ARCHITECT





VIEW OF COW BARN FROM ENTRANCE GATE



FARM YARD SIDE OF STABLE

ESTATE OF COMMODORE FRED BOURNE, OAKDALE, LONG ISLAND, N. Y.

ALFRED HOPKINS, ARCHITECT

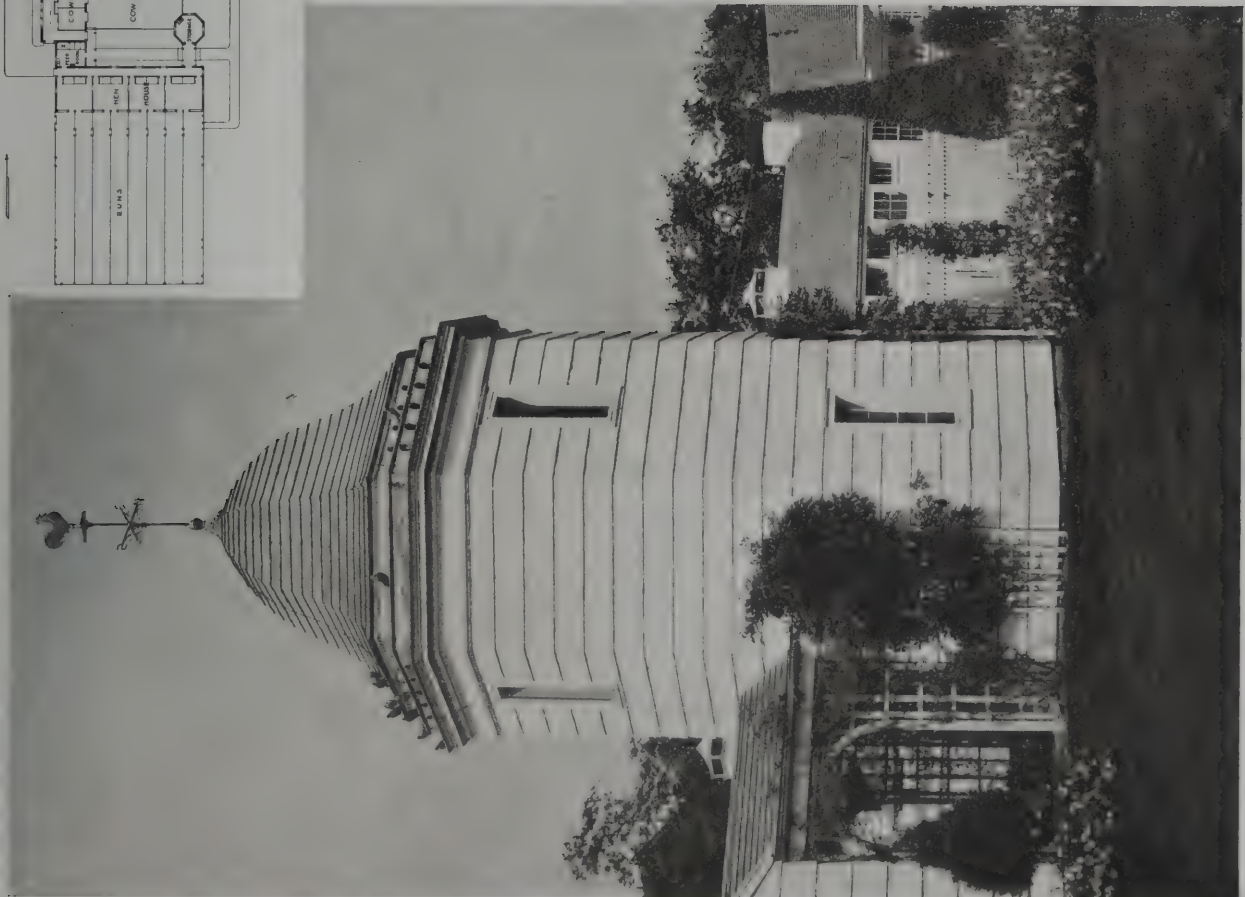
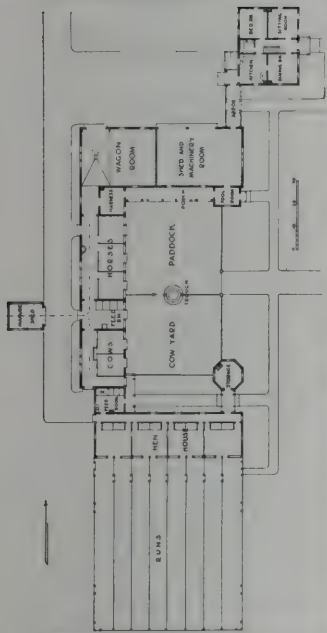


GENERAL VIEW OF FARM BUILDINGS FROM THE EAST



FRONT VIEW OF FARMER'S COTTAGE

ESTATE OF ADOLPH MOLLENHAUER, ESQ., BAYSHORE, LONG ISLAND, N. Y.
ALFRED HOPKINS, ARCHITECT



STORAGE TOWER AND PIGEON COTE

ESTATE OF ADOLPH MOLLENHAUER, ESQ., BAYSHORE, LONG ISLAND, N. Y.

ALFRED HOPKINS, ARCHITECT



DETAIL OF FARMER'S COTTAGE



VIEW LOOKING FROM PADDOCK TOWARD ENTRANCE DRIVEWAY

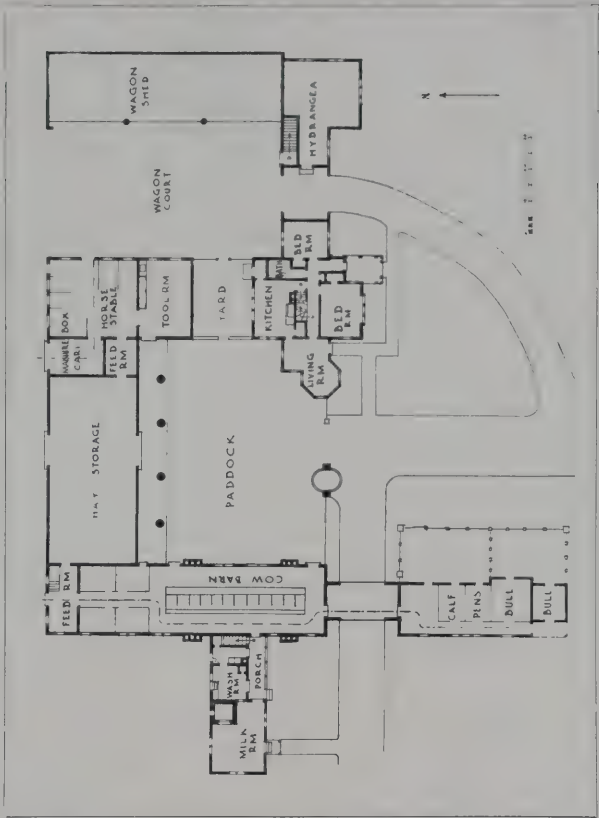


VIEW IN WAGON COURT LOOKING TOWARD HERDSMAN'S HOUSE

FARM BUILDINGS OF MORTIMER L. SCHIFF, ESQ., OYSTER BAY, LONG ISLAND, N. Y.
ALFRED HOPKINS, ARCHITECT



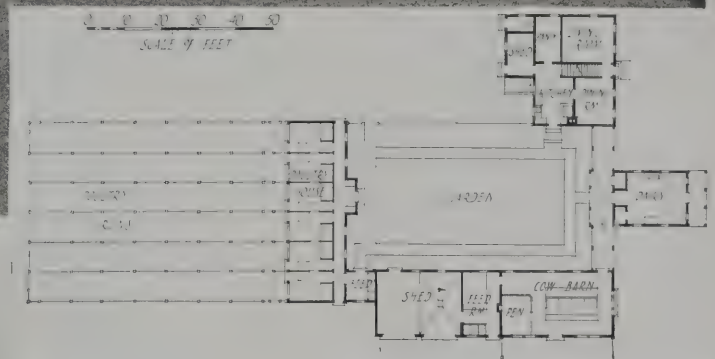
GENERAL VIEW FROM THE NORTH



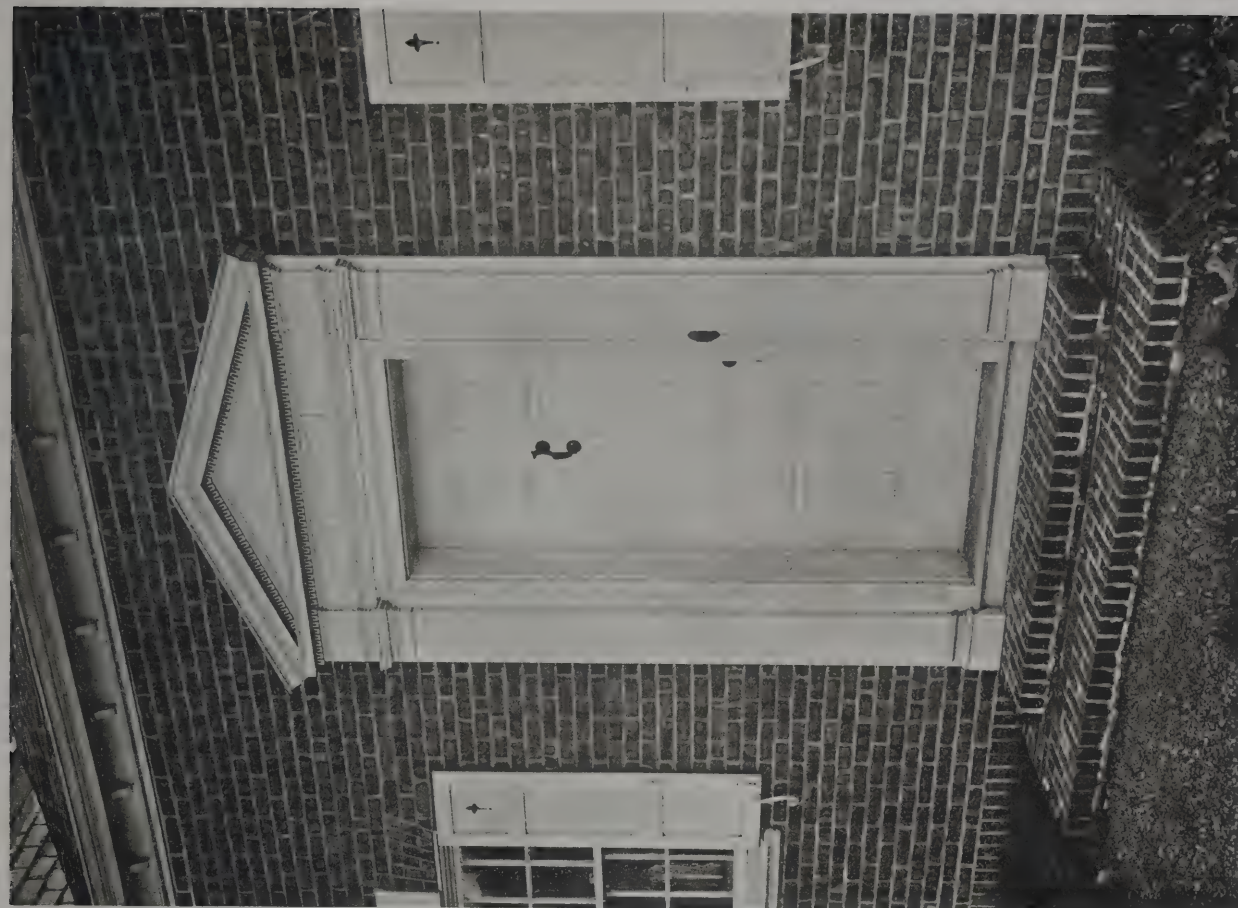
FIRST FLOOR PLAN OF GROUP
MORTIMER L. SCHIFF, ESQ., OYSTER BAY, LONG ISLAND, N. Y.
ALFRED HOPKINS, ARCHITECT



DETAIL OF HERDSMAN'S HOUSE
FARM BUILDINGS OF



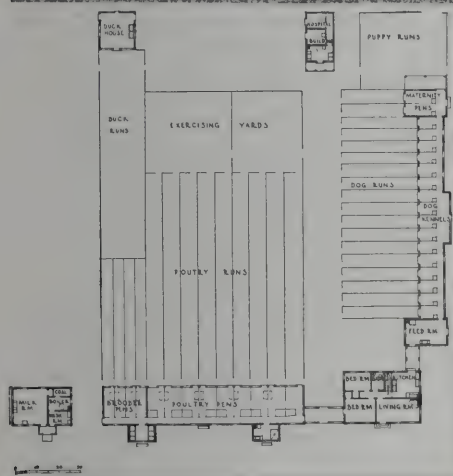
VIEWS OF FARMER'S COTTAGE AND DAIRY AND PLAN OF GROUP
 FARM BUILDINGS OF ANSON W. BURCHARD, ESQ., LOCUST VALLEY, LONG ISLAND, N. Y.
 ALFRED HOPKINS, ARCHITECT



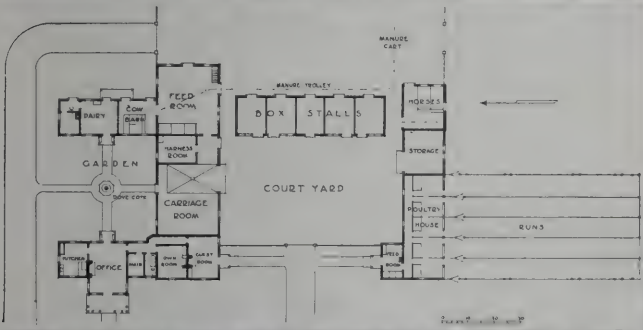
DOORWAY TO FARMER'S COTTAGE
ESTATE OF EFFINGHAM LAWRENCE, ESQ., COLD SPRINGS, N. Y.
ALFRED HOPKINS, ARCHITECT



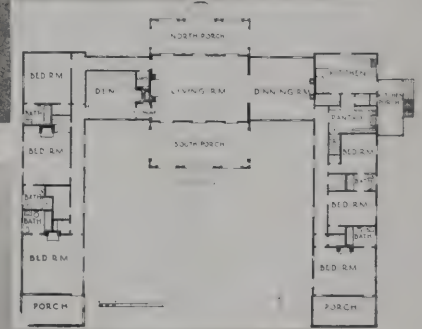
PORCH CONNECTING DAIRY TO FARMER'S COTTAGE
ESTATE OF ANSON W. BURCHARD, ESQ., LOCUST VALLEY, L. I.
ALFRED HOPKINS, ARCHITECT



VIEWS OF POULTRY AND KENNEL GROUP WITH FARMER'S COTTAGE
 FARM BUILDINGS OF EFFINGHAM LAWRENCE, ESQ., COLD SPRINGS, N. Y.
 ALFRED HOPKINS, ARCHITECT



VIEW OF NORTH COURT BELOW AND WEST COURT ABOVE
 FARM BUILDINGS OF GLENN STEWART, ESQ., LOCUST VALLEY, LONG ISLAND, N. Y.
 ALFRED HOPKINS, ARCHITECT



ENTRANCE FRONT ABOVE AND SOUTH COURT BELOW
 HOUSE OF GLENN STEWART, ESQ., LOCUST VALLEY, LONG ISLAND, N. Y.
 ALFRED HOPKINS, ARCHITECT



DETAIL OF NORTH OR ENTRANCE PORCH

HOUSE AND FARM BUILDINGS OF GLENN STEWART, ESQ., LOCUST VALLEY, LONG ISLAND, N. Y.
ALFRED HOPKINS, ARCHITECT



GENERAL VIEW OF SOUTH FRONT



SUPERINTENDENT'S COTTAGE



GENERAL VIEW FROM APPROACH



VIEW OF FARM GROUP FROM HIGH GROUND AT REAR
FARM BUILDINGS, ESTATE OF J. C. BALDWIN, JR., ESQ., MT. KISCO, N. Y.
BENJAMIN WISTAR MORRIS, ARCHITECT



PLAN AND GENERAL VIEWS
FARM BUILDINGS OF MESSRS. L. AND R. W. JOHNSON, CROYDEN, PA.
DUHRING, OKIE & ZIEGLER, ARCHITECTS



GENERAL VIEWS OF ENTRANCE SIDE
 FARM BUILDINGS OF FELIX M. WARBURG, ESQ., WHITE PLAINS, N. Y.
 ELISHA HARRIS JANES, ARCHITECT



DETAIL OF FARM STABLE AND SILO

FARM BUILDINGS OF FELIX WARBURG, ESQ., WHITE PLAINS, N. Y.

ELISHA HARRIS JANES, ARCHITECT



VIEW OF ENTRANCE COURTYARD



FEED HOUSE OF POULTRY GROUP

Some Recent Farm Buildings

FROM THE DESIGNS OF ALFRED HOPKINS, ARCHITECT

Illustrated in the Plates

ESTATE OF ADOLPH MOLLENHAUER, ESQ., BAY SHORE, L. I. This is a small group of buildings on a gentleman's private estate intended to provide for three horses and two cows, all in box stalls. The box stalls for the cows differ a little from the usual type in that they have a combination manger equipped with stanchions. The feed room comes between the cow barn and the horse stable, and the necessities of the situation demanded that the manure shed be put to the east behind the buildings. In order to do away with the necessity of opening an east door in the winter into either one of the compartments for the animals, a trolley was run through the feed room, this acting as a vestibule.

The chicken houses were incorporated in the group of farm buildings, which is only advisable where a few animals are to be provided for. The chicken house is always best located when away from the large group of buildings, but here the conditions were such that it could be easily incorporated. Not only the conditions of the buildings themselves made this necessary, but those of the site which was restricted, and made the grouping together of all the live stock imperative. The chicken house has the customary exposure, with its runs facing south.

The buildings are grouped around a court which is used for the animals, the working entrance being from the rear and north. The farmer's cottage stands in front of the main building and to one side, and is joined to the group by an arbor which is now well grown over with the planting. A large shed and machinery room have been provided for general storage space, together with the usual wagon room for vehicles in service, and a harness room.

On the other side of the buildings a tower has been incorporated, primarily for pigeons, but the second story is used as an extra man's room in summer.

The buildings have been designed in the style of the Long Island farm buildings, and it was intended to make the tower reminiscent of some of the old windmills which may still be seen in West Hampton and Southampton.

The planting of the property, characterized chiefly by evergreens in front of the buildings, is not in accordance with the architect's recommendations or in conformity with the type of landscape work he considers best suited to the architecture.

RESIDENCE AND FARM BUILDINGS OF GLENN STEWART, ESQ., LOCUST VALLEY, L. I. These buildings were designed for a somewhat restricted piece of property. The main roadway to the house goes directly in front of the farm barns so that it was

necessary to design them in a fitting manner.

The farm buildings contain accommodations for two cows, five riding horses in box stalls, and a team of two horses. A poultry house was planned, but this wing was never built. Added to this is a small dairy and a living apartment which has proven very attractive and serviceable. This includes a kitchen, a large living room or office, which, while it contains a desk and files, is really fitted up as a living room and used as such. The second story has two comfortable bedrooms and bath, and a room for a maid.

The dairy and cow barn were incorporated in a smaller wing which formed a court garden and though this has a northerly exposure, there has never been any difficulty in making the garden grow to everybody's satisfaction.

A good sized feed room was included, in which all feed is kept. Hay is stored in bales, always an economical method, so far as the building is concerned, and it is unfortunate that the value of baled hay is not more generally known and appreciated. Baled hay will not burn, so the fire risk is immediately reduced and it is usually much cheaper to bale hay than it is to build a barn of the increased size necessary to store it in bulk. Usually three times as much baled hay can be stored in the same area as loose hay. Baled hay is always particularly useful in the smaller problem.

The residence, all the rooms of which are on one floor, was built at the south end of the property with a large court facing the south. This has not yet been properly planted and much of its effectiveness is thereby lost. The guest's bedroom and sleeping porch were placed at the south end of the service wing to correspond to the owner's bedroom and sleeping porch on the other wing.

ESTATE OF MORTIMER L. SCHIFF, ESQ., OYSTER BAY, L. I. The views shown are of a structure built on the old foundations of a previous one destroyed by fire. The calf pen barn built across the roadway is an extension added to the original group to obtain greater accommodation. The plan provides for twelve milking cows and four box stalls, with a small feed room at the end, the main feed storage being in the hay barn. On the other side of the group have been provided six horse stalls and a box stall with the feed room. A place has been provided with a manure cart in a manner which is not always to be recommended. The manure cart ought to be taken outside of the building but it was the owner's wish to have it placed out of sight, and his buildings are kept so clean that it has not proven an objection.



Detail of Drinking Trough, Farm Buildings of Commodore Fred Bourne, Oakdale, Long Island

In this wing have been provided, also, the living quarters for the herdsman and in connection a place for the storage of hydrangeas for the winter, a very desirable feature on a large place. This is conveniently located to be heated from the herdsman's house.

Ample shed room has been arranged. It is impossible to overestimate the value of plenty of shed room. Very few farms ever find they have too much.

ESTATE OF ANSON W. BURCHARD, ESQ., LOCUST VALLEY, L. I. These buildings show another plan where the poultry house has been incorporated in the rest of the scheme to advantage. The problem was a simple one calling for a gardener's cottage, a dairy, a cow barn containing four stalls and a box stall, hay storage and shed, together with a poultry house.

The farm is a small one, in fact the actual farming consists chiefly of work in the garden. Only one horse is necessary and his quarters are in the stable for hunting horses built near by.

The dairy is located so that it gets its heat and hot water from the farmer's house. The court formed by the buildings has never been properly planted, but makes a very convenient farmer's back yard. The live stock are all under easy control and convenient to the farmer's quarters.

DOG KENNELS AND POULTRY HOUSE OF EFFINGHAM LAWRENCE, ESQ., COLD SPRING, N. Y. While these buildings are somewhat extended in plan, they follow out the simplest possible principles. In the chicken house have been provided nine pens for laying hens and four pens for the brooders. The two bays thrown out at the back of the building which faces the main courtyard have been used for feed rooms. The runs occupy the usual position to the south, all

fencing being of the iron post and wire type which has proven very satisfactory from every point of view.

The dog kennels consist of one long, well ventilated building containing eighteen pens and a feed room.

All the pens have cork brick floors and the partitions are of concrete for cleanliness. All the windows opening out into the yards are fitted with transoms, and these transoms operate by a worm gear so that all may be opened together. In this way the building has perfect ventilation, and this method has proven entirely satisfactory.

The buildings are of brick, which, however, is only a veneer. This method of building in brick is not only the least expensive, but the best, especially for the low type of farm buildings, such as these buildings are.

At the end of the alleyway between the dog runs and the chicken runs has been located the dogs' hospital, for which, however, there has been very little use. Still such a building is always very desirable, and when it is needed it is needed badly.

ESTATE OF COMMODORE FRED BOURNE, OAKDALE, L. I. These farm buildings are on a large estate near Sayville, L. I. They comprise accommodations for approximately thirty milking cows, the corresponding amount of dry stock and young stock, fourteen horses with commodious accommodations in the way of wagon room, sheds, hay storage, machine sheds, tool sheds, blacksmith shop, etc. In this group have also been combined a rather extensive chicken plant with accommodations for the chicken man. There is also a large dairy, and the silo and water tank have been incorporated in a tower of considerable height. All the walls are of terra cotta hollow tile, all shed walls and the walls of the horse stable being filled four feet high with concrete, always necessary in this construction. The exterior walls have been stuccoed and the interior walls plastered where a finished effect was desired.

The roofs are of shingles, and a certain amount of colored terra cotta has been introduced into the scheme for decoration, this being composed entirely of the birds and animals of the farm yard, not forgetting the frog which croaks on the four corners of the entrance posts.

Because of the objection of the owner to planting, on the theory that it harbors mosquitoes, these buildings have never received any landscape treatment. The plain stucco walls are sadly in need of planting, and in fact the whole group was designed with the idea that it should receive its embellishment by this means.

The Cottage Planned Orphanage

PART II. DETAILS OF COTTAGES AND ACCESSORY BUILDINGS

Concluding Paper

By HAROLD C. WHITEHOUSE

THE preceding paper considered the practical features of the cottage plan as related to bedroom and service facilities. There remain the rooms of a social nature in the design of which great care must be taken if the full benefits of the cottage system are to be realized. The architect should strive for a homelike atmosphere in all parts of the buildings. Every detail for the pleasure of the child should be worked in. A fault in many cottage-planned orphanages is that the architect has not kept clear of the institutional atmosphere somewhere in his group. Cottages all of one design stiffly arranged and severely landscaped together with an administration building of a monumental character, are the things that, to the passerby, mark the group an institution, and to the child not a place to call home.

Living Room. This room is the center of the house. It cannot be too spacious; it is bound to be limited. For a cottage of thirty children a good average size would be a floor area equivalent to seventeen feet by thirty-four feet. For smaller capacity cottages the size might be reduced in proportion. It should be borne in mind that at times the children of one cottage will entertain the children of another, and this would make a large number to accommodate, therefore, the living room should not be too small. Provision should be made for books and magazines, unless this item is taken care of in a central library. A fireplace helps to make the room homelike.

A very useful room in connection with the living room is one for music where some of the children could practice their music lessons, or a quiet alcove where some could seclude themselves to read, apart from the more obstreperous youngsters. This part of the house should be furnished with good substantial furniture, rugs of good color, hangings well selected and the whole in good taste.

The writer has had discussions with people who have asked how it could be practicable to keep a place of this sort looking homelike and in good order with so many children constantly around. It is easily possible. There are institutions in this country, one in particular which cares for delinquent boys, which is built on the cottage plan with about twenty-five in each cottage. When you enter the living portion of any one of the cottages, you are impressed with the neat, homelike and orderly atmosphere. The walls are hung with pictures, upon the tables are books, magazines, reading lamps, and on the couches are cushions, rugs are on the floors, in fact no detail has been overlooked to create a real home. The average person, however, knows little of the results secured from the training of children by properly administered institutions. A homelike environment creates in the average child a certain respect for the privilege thrust upon him which he usually honors.

A porch of good size directly connecting with the living room or some main part of the house is necessary. It is here during rainy weather the children can play and be under the eye of the matron.

Dining Room. The dining room needs good lighting, ventilation and sunshine, but should not be too large. Make it large enough for its purpose but if it is too large, it will not be homelike. The scheme of seating the children at tables varies in institutions, some use tables seating only four, others use two or three tables seating six, eight or ten each. Some institutions use four seats at a table for the older children, and seat six or eight of the younger at a table in charge of one of the older children.

Great improvements have been made in recent years in the system of feeding children. It is regrettable to visit many of the present institutions



Two First Floor Plan Arrangements for Cottages accommodating twenty-five inmates each, that incorporate features described in the text

Whitehouse & Price, Architects

where they are still using the tables and chairs of orphanages of fifty years ago.

"Long, bare, or oilcloth covered tables, with backless benches for seats, the relics of barbarism. Agatized metal dishes, often chipped and scaled so as to expose rusty patches, and rusty cutlery and spoons, these should be replaced everywhere with a fair quality of china and plateware. Tablecloths and napkins have a distinct educational value, say nothing of the need for decent service. Chairs should always be provided, and cheerfully decorated walls should surround the tables. Light and beauty should be utilized to make the youthful diners happy, and promote the digestion of well selected and properly cooked food."*

A buffet should be provided for the dining room. This should be carefully designed to hold the silverware, knives, forks, spoons, and table linen in drawers of proper size. The placing of these articles in good order in the drawers is an important part of the training of youngsters. The drawers should not be too high so the child may easily arrange the silver. The top of the buffet should have ample space for sugar bowls, salt and pepper holders, water pitchers, etc., and there should be a few cupboards.

The designer should be careful in the proportions of heights of various fixtures. It is not the intention of the author to recommend things Lilliputian in size, but of a size merely to aid the child in its efficiency.

* "Child Placing in Families," W. H. Slingerland, Department of Child Helping, Russell Sage Foundation 1918, p. 105.

The use of Lilliputian size furniture is not generally recommended because the average child of the present day orphanage is placed out sooner or later in a permanent home where things are not diminutive in scale. This is a small detail, but as one authority said: "It might have a tendency to make the child awkward in its new environment."

The basement of the cottage might be given up to a play room, the heating plant, storeroom, and a small laundry with wash trays. This laundry is used for washing out articles that the matron does not care to send to the central laundry. If the basement has all the space that is needed and does not cover the whole ground plan, it is an advantage. A part basement under the average residence is never much of an economy in construction, but in orphanage cottages the space should be kept down to reduce the care of maintenance.

The play room should be of good size, well lighted and ventilated. Lockers for the children's toys, and wall seats might be provided. Some play rooms are worked up in a very decorative manner with friezes illustrating tales from Mother Goose, small furniture for dolls' tea parties, play houses, and other toys. Where the cottage houses twenty to twenty-five children, this room usually works in better and more economically in the basement, but for cottages of smaller capacity it may be possible to arrange it on the first floor or one of the upper floors.

Receiving Cottage. Where large numbers of children are cared for, and it is necessary to watch



Kindergarten at the Chicago Nursery and Half Orphanage Asylum, Chicago, Ill.
Holabird & Roche, Architects

carefully for any contagion entering the institution, a building is provided for the reception of all newcomers. After the child has been thoroughly examined as to its fitness, physically and mentally, to become an inmate, it is placed in this building and kept for two or three weeks to make sure it will develop no disease. This receiving cottage is maintained as a separate unit, except that no training whatever is carried on in the preparation of meals, and similar household duties. This work is done by the matron or nurses in charge. The children are generally received in the building in groups of a certain number of boys and girls, kept for a certain period, and then sent to the various units. The cottage is then thoroughly cleaned, and another group is received.

A suggested plan for a building used this way, would be: two dormitories, with toilets and lockers, one for boys and one for girls, a dining room and kitchen, living room and such other minor details as needed. This building need be very unpretentious, possibly with a basement only large enough to house the heating plant.

Administration Department. A building or space should be provided to house the administrative offices, together with other departments, possibly the superintendent's living quarters (or he could have his separate home in the group). It is of particular advantage in planning for the superintendent's office to place it, so he can at all times survey the main road of travel to and from the group, and if possible have a good view of the cottages. This is true also of his sleeping quarters. His office should be directly connected with all parts of the institution by telephone. A system of inter-communicating telephones or, if the institution is large enough, a private branch exchange is essential.

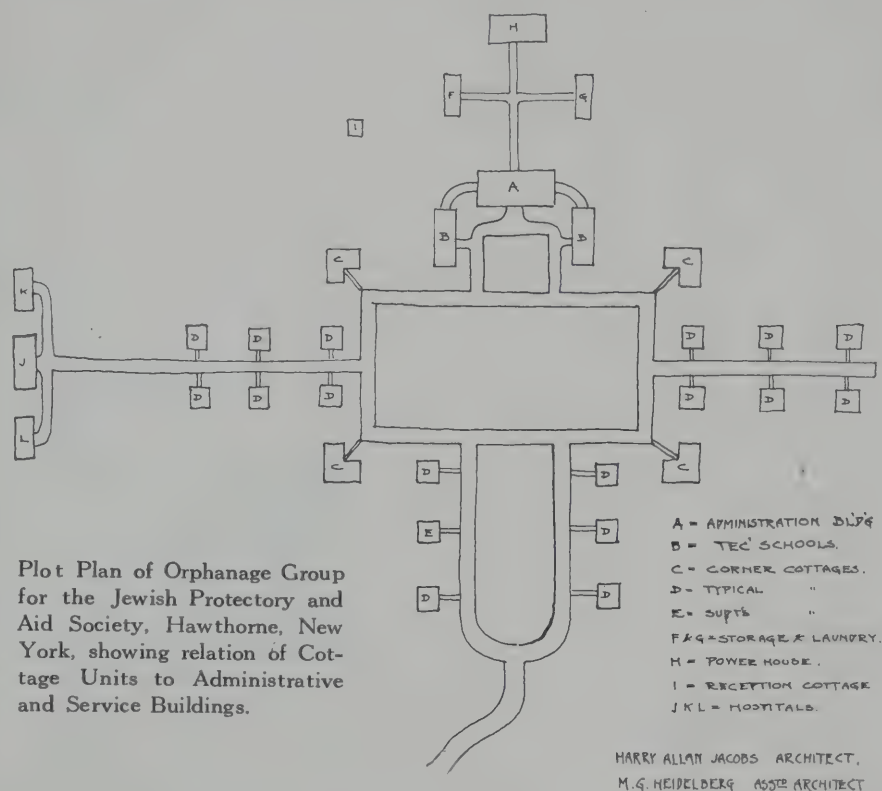
A room for general assembly of the whole institution for entertainments is a feature carried out extensively in some places. The children are fond of, and enjoy taking part in playlets and musicals. Provision for a moving picture machine is a valuable asset. If dancing is allowed in the institution, a level floor should be provided.

If religious services are held in the assembly room, provisions should be made for an organ or piano. It is quite customary for most institutions to use the assembly room for gatherings both social and religious. The capacity of the assembly room should be two or three times the number of children cared

for. This extra seating capacity will be found necessary for visitors from the outside. The public should always be welcome, both children and adults. An orphanage well conducted generally encourages the mingling of the children with those from the outside.

A room for examination purposes, both physical and mental, is sometimes provided. This room may be combined with a room in the infirmary (if the same be located in the administration building) to take care of minor medical attendance that children may need.

If the institution does not maintain its own school



system, sometimes a room or small building for a library is an excellent thing to aid in the child training. Here can be placed innumerable volumes and possibly pictures or even a small museum. In this way the child will have access to properly selected books that lead him along the way of right thinking.

A room well lighted and partially fitted for a visiting dentist is absolutely necessary. The usual and necessary plumbing outlets should, of course, be provided.

Infirmary. An infirmary provided in a wing of the administration building or attached to some other building in the group is necessary to care for sick children. One well known institution, where as many as seven to eight hundred children are cared for, has erected a hospital building and has found it almost useless because the sick rate was kept so low. The amount of sickness among children is small where they are well cared for and live with a daily routine of great regularity. Therefore a small infirmary is

all that is generally recommended and a few rooms to care for children's ills are sufficient. A limited number of rooms properly planned to care for contagious cases are advisable, although most institutions prefer to send such patients to a near-by hospital or place of isolation.

A small surgery for the removal of tonsils, adenoids, and other minor operations, together with a small sterilizing room, surgeon's lavatory, etc., are almost necessary, especially if the buildings be located at some distance from town or too far from some hospital. A dispensary should be provided and this might also be used for the minor medical attendance that the children need, as before mentioned.

The infirmary should have a small laundry to take care of linen used by the patients, especially those having a contagious disease. This might be a complete laundry in itself or may be used as a preliminary washing out or disinfecting place of the linen preparatory to its being sent to the central laundry building. Some provision should be made for the burning of any bandages from the infirmary and especially the surgery. If the boiler room is near, they may be taken there in receptacles and burned by the engineer.

A building or buildings should be provided for laundry, storeroom, and possibly a refrigerating plant for the making of ice if the location is not in a cold enough climate for the cutting of natural ice in winter. A very good scheme is worked out in the New York Orphanage at Hastings-on-the-Hudson, N. Y., for the making of ice. In the center of the playground is a tennis court of concrete. The court sets some fourteen to sixteen inches below grade and the sides are dished. The whole thing has a slight drainage toward an outlet in the center. In the summer this is used for tennis and at intervals it is filled with water and the children wade in it. They use it for roller skating, and in the winter when it is filled and frozen, it is used for ice skating. All the ice needed for the entire institution is cut in this basin and stored for summer use.

Storeroom. A central storeroom should be provided; in fact a miniature grocery store, where supplies can be obtained by requisition, is what is needed. A refrigerator large enough to hold meats is also needed and these facilities together with any other related department of the institution could be grouped so that one man or a man and his wife could have charge. The laundry might be planned in connection therewith. The directors of orphanages should co-operate with the architect to get the best results in plan, to the end that the number of employees shall be cut to the minimum, for this is a very large item of operating expenses.

Employees' Quarters. The majority of employees in orphanages are, as a rule, refined and educated. This is particularly true of the cottage

mothers or matrons. These women sacrifice a great deal when they come into such work, and their hours of rest and recreation should be amid pleasant surroundings. Usually matrons are relieved from time to time of their duties by other matrons sometimes called relief matrons. In addition to these women, there are usually employed one or two seamstresses, depending on the number of children. A practical or trained nurse is sometimes provided. All such employees should be provided with pleasant quarters, a living or reception room and also a central dining room. Sometimes the relief matrons, seamstresses, nurses, school teachers, etc., have their meals at the various cottages. This is a more economical way of feeding them. As a general rule the living quarters of any of the employees should be kept apart from those of the children if it can be so planned.

Laundry. The laundry is important in the training of the child, especially the girls. It is probably best to have the equipment consist of the usual rotary type washer, centrifugal wringer, mangle, and as a time saver, possibly a dry tumbler. A few trays also are necessary. The laundry, needless to say, should have the best of ventilation, light and a good high ceiling. The handwork of ironing is usually taught the girls in the laundry. A series of ironing boards hung from the wall with electric irons and a safety plug provided, makes an ideal arrangement. The ironing may be done in the same room where the machines are located or in a separate room apart from the washing room. Whatever the arrangement, it should be for the most efficient supervision. Some cottage systems have the girls iron the clothes in the cottage laundry under the supervision of the matron, while all the larger flat work is done at the central laundry.

Bakery. Bread fills an important part in the diet of the children. Most institutions have a central bakery for the baking of bread, and in some instances also pastries, but in most cases the latter are prepared in the cottages. If a bakery is planned only for the baking of bread a small room will serve the purpose. Where one hundred children are cared for, a room about eleven by sixteen feet will be found adequate if an electric oven is used. If a bricked-in oven is used a room larger than this will be necessary. In connection with the bakery there should be a room or closet for the storage of bread on racks as it is taken from the oven.

Vegetable Storage. If the group is located in the country or in fact where root vegetables are received in quantities, a vegetable or root cellar is necessary. If agriculture is a feature of the training or carried on merely as a part of the support of the place, the children do most of the work. Examples of this kind of institution are the Lincoln Agricultural School, Lincolndale, N. Y., and Good Will Farm, Hinckley, Maine.

Recreation Features. A leading feature entirely necessary to the health and enjoyment of the children will be a good-sized playground. If the property is large enough such things as a football and baseball field, playground apparatus, wading or swimming pool, will give the children great recreation. Tennis courts might be provided of concrete, to be used also for roller skating, wading, ice skating, etc., as described before. If possible provide a few drinking fountains about the play fields. A building for recreation, including a gymnasium and apparatus, pool, etc., could be provided but is more costly to build and maintain.

Some time ago I was asked by a client to make a trip through the eastern part of our country and gather data relative to the most modern architecture of orphan institutions. It was his intention to build

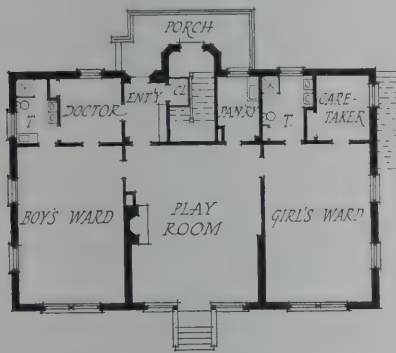
such an institution to take the place of an already existing plant, which had been built on the congregate plan and was out of date. My client little realized the importance of the administrative side of it, and consequently its bearing on the architecture.

When I visited the first institution which, by the way, was one of the most successfully administered cottage planned orphanages of the country, I suddenly realized upon entering the group, that first of all, I must acquaint myself with the inner workings of not only this institution but all the others I was to visit. To go into details of planning with the superintendent in charge and to learn nothing of his system would mean to get only a superficial acquaintance with his plant and go away little repaid. After a few minutes of brief conversation I asked the superintendent to forget that I was an architect and to please tell me the story of his system.

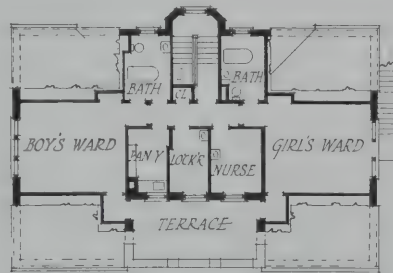
He opened his remarks by saying:

"If your client intends to build an orphanage along modern lines he must build it on the cottage plan."

I asked: "Why?" and he said: "Because you cannot begin to create a homelike environment in any other way." His remarks proved, in all my investigations that this was the key to successful planning and many later questions were answered, "Because it is more like a home."



First Floor Plan



Second Floor Plan
Showing Isolation Wards



Infirmary Building at the Chicago Nursery and Half Orphanage Asylum, Chicago, Illinois
Holabird & Roche, Architects

A Brick Cottage at Summit, New Jersey

HOWARD MAJOR, ARCHITECT



SECOND FLOOR PLAN



FIRST FLOOR PLAN



The Architect of the Future

PART III. THE CLIENT AND HIS PROBLEM

By C. STANLEY TAYLOR

IN analyzing any profession which contributes directly to the development of social, civic, commercial or industrial expansion, it may easily be realized that the strength of relations between the buyer and seller of service depends largely upon a sense of mutual appreciation and understanding.

In making analytical comparisons of various professions it will be found almost invariably that those professions which deal with arbitrary and clearly defined actions and reactions are better established than those whose activities bring about indirect and less easily understood results. It is interesting to realize that the activities and methods of professions which offer definite results where their services are utilized are vague and mysterious to the layman who willingly bears the cost. On the other hand, professional services which are definite and easily understood, but which bring indirect though logical results, are retained and paid for unwillingly and doubtfully by the client.

For example, the action of civil law is arbitrary and definite. It gives or takes value according to definitive justice, which depends considerably on the presentation of the case. The layman client does not hesitate to retain an attorney, and rarely questions his methods, although they be not easily understood. So in the practice of medicine, although he does not understand its action, the patient willingly takes the remedy prescribed by his doctor. As an example of opposed condition let us consider professional services which are definite in application but indirect in results — for instance, professional advice in the writing of a building code for a city. A good building code, through direct methods of regulation, may indirectly add hundreds of thousands of dollars to the value of local real estate, but a city unwillingly and hesitatingly retains the service of a building code expert! Indirect advertising methods, social welfare, industrial welfare, efficiency methods — all services of a professional nature, come within the latter class. But architecture in which the application of trained professional services brings about results of a most definite and tangible nature has not yet been classed as it should be, in the public mind, as a necessary, dependable profession. The reason for this is a lack of mutual understanding, failure in many cases on the part of the architect to appreciate his client's viewpoint; and a lack of understanding on the part of the client as to the scope and value of the architect's service.

This condition is remediable through the establishment of a better relationship between the architect and his client. To get at the fundamentals of this

relationship we find that it is first established during preliminary discussions of the project. The client has usually a fairly clear conception of what he wants, and while he welcomes suggestions at this point he may be easily antagonized by the assumption of an overbearing or "know-it-all" attitude. Such an attitude is justifiable only by a certainty, impossible in a profession where satisfaction as to results depends so largely on the client. This mistake on the part of architects must have been common during past years if the general attitude of the public may be taken as a criterion. The wishes of the client and the result which he has in mind should be the goal of the architect, to be reached by the most efficient and economical means possible!

It has been said in a foregoing article that time spent with a client in analyzing his problem will save much wasted time over the drafting-boards. The logic of this statement is indisputable and this method has added value in establishing a closer relationship with the client.

It does not follow that the architect shall be vacillating in his decisions or lacking in conviction relative to points of his profession. He must, however, always keep before his mind the factor of efficiency of purpose in the building he is designing. Perhaps it is a significant fact that in the more successful modern apartment buildings, elevation design has been sacrificed to fenestration and we find bathroom windows in the front of the building.

An important element in the first stages of the relationship between the architect and his client is the business sense shown by the former in preliminary discussions of the project. In respect to the average building there are two questions in the mind of a prospective client. These are confined first to the æsthetical and useful qualities and, second, to the business aspect. If the building is to be a dwelling or of monumental type the important factors combine beauty of design and efficient layout from the viewpoint of comfort for those who are to use the building. If, however, the building is to be an investment — speculative or permanent — the factors of stability of realty values, income producing features and the usefulness of the building as an industrial tool are those which are of more importance than æsthetic qualities. Here, too, the question of costs becomes more insistent and of prime importance.

The architect must discriminate finely and learn exactly the viewpoint of the client as to this phase of the project. On an investment or business building, offhand costs should never be given. They are too hard to determine and are taken too seriously

by the owner. It seems easy indeed to quote an off-hand figure and to amend it after careful estimate, but those who have had this experience will remember the difficulty encountered.

A Canadian architect at a recent informal gathering of business men in New York made an interesting comment on the danger of unprepared price-quoting. He gave the following example of his personal experience:

"Through the apparently innocent medium of a snap-judgment figure I recently lost the best client I ever had," he said.

"He came into the office one day on a question of an alteration to a building which we had designed for him some years before. After finishing this discussion he informed me that he had recently been appointed on a board of directors of a corporation which had already retained the services of an architect, had a building designed and were ready to accept at a board meeting next day a bid from a local contractor. He then stated that according to his judgment the contract price was far too high and after giving dimensions and a general description asked me what I thought the building should be built for. On a cubic foot basis and with a generous addition as a safety factor I gave him \$450,000 as a general figure. Two days later he came in and authorized a detailed estimate on the plans. The result was \$540,000 as a close figure. I telephoned the result to him and apologized casually for my poor guess — but he never came into the office again. Subsequently I learned on inquiry that he had gone before the board and strongly opposed letting the contract at the figure of \$550,000 on the ground that he knew the figure to be high. After receiving the corrected estimate from my office he was forced to admit his error and he never forgave my contribution toward the mistake. His attitude in the matter may have been unfair, but mine was inexcusably foolish. Needless to say, gentlemen, there is now a rule in our office against giving figures on cost until they have been approved by the estimating department." The question of price-quoting, therefore, seems to have as its solution the maintenance of a definite policy involving the quotation only of figures which have been arrived at by careful analysis and calculation. On this basis alone can disappointment and costly errors be avoided in the establishment of relations with the client.

Another feature of interest in the development of the relationship in question is that of the method of submitting preliminary sketch plans. There can be no doubt that attractively presented sketches carry more weight than those which are drawn in an apparently careless manner. There will, of course, be found instances where rough sketches will be unavoidable but in general it is better policy to insist upon sufficient time to make the first presentation of the project sufficiently striking to arrest attention and

establish interest. Only recently the writer was discussing the question of financing small house operations with the president of one of the largest building loan organizations in America. In the course of the conversation the building loan expert was commenting upon the usually unattractive manner in which projects which his organization was called upon to finance were presented by the owners, and he said that generally the sketches were inadequate and did not convey any sense of careful and studied preparation. He then referred to the work of a local architect in preparing sketch plans for clients who wished to use them for the purpose of obtaining building loans. In describing this architect's work he commented enthusiastically upon the attractive presentation of water-colored perspectives and plainly drawn plans, and stated that the projected building loan was more than half approved when the work of this particular architect was recognized by style as well as by name. The value of well presented drawings for use in connection with a project which must be promoted or financed cannot be over-rated. Pictures always convey more than words, and the business interest of the client may be greatly furthered by the architect who does careful preliminary work.

In working out the plans for a projected building, the general layout should be discussed thoroughly with the owner before the first plans are submitted, and before presentation this should be most carefully considered and analyzed by the architect in order that the first attempt may meet as nearly as possible the approval of the owner and may in many cases offer valuable suggestions to him. In working out the first draft of floor plans for any building, other projects of a similar nature which have proven successful should be studied in order to include the business viewpoint in later discussions with the owner. Careful study of existing buildings is easier than experimental planning and is likely to be subject to less criticism and afford quicker approval on the part of the client. After the general layout is worked out it should be gone over in considerable detail with the owner in order to avoid changes after working drawings have been started. By careful analysis of the plan, and explaining reasons and methods of arriving at conclusions, it will be found that a well established relationship between the architect and his client has been developed, based upon appreciation and a businesslike attitude.

In the next stage of the work, when costs are being worked out and buying begins, the client must be made to feel that the architect is co-operating strongly in his interest. This condition can only be brought about by a careful cost analysis of the building, showing a schedule influenced by the use of various materials for the basic quantities.

As the work progresses under actual construction there is often a tendency on the part of the architect

to allow his interest to abate somewhat, probably owing to the fact that the creative function is no longer being exercised and the work has reached the practical phase which is usually undertaken by the contractor. It is at this point that relations with the owner may become strained and the value of personal attention to the project must not be overlooked. An owner is invariably pleased to know that members of the firm are occasionally visiting the job even though he knows that field representatives of the office are supervising the work. This is particularly true in case of work which is of a personal nature, such as fine residential projects. An excellent example of the value of personal attention while work is under construction came to the attention of the writer while visiting a suburban section near New York City.

At this point attractive country residences were being built on two adjoining estates. The houses were designed by different architects and so good were the plans of each that it was difficult to determine which could be called the better house, preference depending upon personal taste rather than on architectural merit. On visiting the same section two years later it was noted with interest that another fine residence more expensive than either of the two first houses, had been constructed in the neighborhood, as well as an imposing country club. On inquiry it was learned that this residence and the country club had been designed by an architect who had planned one of the original houses, and as a matter of interest inquiry was made as to the method of selecting this architect. It was found that both the more recently constructed dwelling and the clubhouse constituted work which had been obtained by the architect through recommendation from the satisfied owner of one of the first houses. It was also found that both architects were considered in awarding the work on the larger house, but the fact that seemed to weigh most heavily in the decision was found to be that of personal attention. The successful architect was the one who visited his work often and studied on the ground many of the small problems which were more successfully solved for the owner through direct co-operation with the contractor. In the case of the second house the work was done equally well with the exception of small and almost personal details of comfort and convenience, which after all are in many cases of first consideration to the client. The architect who visited the job often met his client there on many occasions and the impression given was one of real service, and the stronger recommendation was naturally based upon the stronger impression.

Bearing out this statement it might be interesting to quote from a letter which was shown to the writer as this article was being prepared for publication. This letter is addressed to one of the members of the firm and contains the following statement:

"Your enclosure of final bill for professional ser-

vices has been received and it gives me pleasure to mail you check in settlement. Should it seem desirable at any time to have photographs taken of the house we of course will be pleased to have this done. Friends in the immediate vicinity in several instances have been outspoken in their admiration of the building and of the appropriate and harmonious setting.

"We have appreciated the *personal attention* you have given to the planning and the construction of the building. It is gratifying to let you know that my wife has repeatedly expressed satisfaction at the results obtained. We are genuinely satisfied in every particular."

The keynote in this letter lies in the two words, "personal attention," and it is for such a result that every architect should strive, not only in creative design but in the maintenance of good relationship.

Even at the point where the work has been completed in a manner satisfactory to the client, the interest of the architect should not drop entirely. A study of completed projects from time to time in order to determine how various innovations or ideas may have worked out in practical use and to watch how the details of planting arrangements have developed, is not only of direct benefit to the architect as a source of added information, but in most cases serves to maintain a cordial relationship with the client which in its potential sales value should never be allowed to die out completely. In the case of a commercial building or an investment project the architect may gain many valuable points through a study of the operation of the building during several years after its completion.

If we were to select the three critical periods in the relationship of the architect and his client they would undoubtedly be: first, during the arrangement of the terms of the contract between the principal parties; second, at the time when materials are being purchased and the work carried out, and third, during the first year following the completion of the operation.

The general terms of payment for architectural services have been clearly established by the profession, and are usually acceptable to the client provided he realizes fully the work which must be done by the architect to earn his fee. Unfortunately for the profession, there has not been established clearly in the public mind a conception of what this work is or of the benefit which may naturally be expected through retaining the services of a good architect.

To offset this condition and to explain in certain terms what a client may expect from the architect, it is often found advisable to prepare a general report setting forth the problem and its solution, a schedule of the work which is to be undertaken by the architect and the terms on which this work is to be carried out. The time and methods of payment should be clearly defined and from time to time progress reports should be rendered showing plainly the work done to date.

In considering the legal aspect of contractual relations between the architect and the client there is one point well worth remembering. That is, if a client shall at any time break a contract the damages which the architect may usually collect are limited to those which he can definitely show. In other words, the full amount of the contract will not usually hold in court, but damages will be limited to the amount of draftsmen's time plus overhead and a reasonable payment for the architect's own time.

When the work is to be carried out and contracts let, great care should be taken to keep the owner appraised of the terms of contracts and the amounts and terms of all indebtedness incurred as his agent. The better method is to have the owner approve all items at regular intervals and the terms of principal items before they are carried out.

Returning again to generalities, we find that the question of the establishment and maintenance of good relations between the architect and his client resolves itself into the resolution that the factors of utility and personal service enter more strongly than does that of artistic merit of design.

In a small community not far from New York City is located a beautifully designed church. Its connotation, its restfulness, create the atmosphere of quiet peace which is the principal object of attainment in this class of design. Practically, however, this building is a failure. The architectural designer will probably never be called upon to design another building in that community. The members of the congregation for whom this church was built, while enthusiastic in praise of the artistic qualities of the building, are not enthusiastic in recommendation for the architect. The reason is that the architect failed in practical points. The interior arrangement of the building is not suitable for carrying on necessary activities. Plumbing fixtures were poorly chosen and have not given satisfaction. The church is not well heated or ventilated. Upon analysis it is found to bear the stamp of impracticability, which so often spells failure in artistic creation.

Seeking the cause of failure in maintaining relations between this architect and his client, we find: first, that he did not spend sufficient time with the minister and the church community to learn what the practical needs of the congregation were. Having the full confidence of the client in the matter of mechanical installation, he did not trouble himself to discuss his selection with men in the congregation who had practical knowledge of the subject. Too much attention was given to creative design and too little to practical equipment and supervision. As a result almost the entire value of credit for a splendid design has been swept away by practical objections and for reasons resulting from conditions which could easily have been avoided.

Perhaps the best guide and criterion of what the

relations in question should be may be had through the simple and time-worn expedient of placing one's self in the mental attitude of the client through various stages of a building operation. In the first stage we find the client's mind occupied with the question of whom he shall select as architect; what he must pay and what service he may expect. The selection will probably be through friendly advice, or possibly through the medium of presentation of some architectural work in a popular magazine. The question of what service he may expect is one which leaves the mind in a hazy condition. How can the client determine this? There has been no organized publicity on the part of the architectural profession to tell the public what they do in connection with building work. The result is that there are no limitations as to the service which the client expects, for he expects from the architect as a professional adviser all the knowledge about building operations which he himself does not possess. He expects to tell his architect what he wants, and from the architect he expects enthusiastic personal attention, for to the client his own project fills the entire horizon and he can never be brought to realize that to the architect it may be only a sector. He expects from the architect a building which will constitute a perfect machine for the carrying out of whatever activity it is designed to house. He credits the architect with knowing what buildings have been successful in this line and which have failed and why. He looks to the architect to be thoroughly equipped with up-to-date knowledge of the best forms of mechanical installation and for protection in the selection and purchase of building materials. When actual construction is being carried on he is forced to depend largely upon the architect for the enforcement of specifications and honest building methods.

We of the profession, having placed ourselves in the mental attitude of the client, can now return to introspection, primarily to determine whether or not we are equipped to provide this service which the client is clearly entitled to, and finally to a determined resolution that our organization individually and collectively is to be strengthened in its weak spots until it is thoroughly equipped to create and maintain the best possible relations with clients who must perforce place their dependence upon the profession of architecture.

We are passing through a period of business and personal self-determination. When much of the complacent gloss has been rubbed off our social, professional and commercial methods by the abrasive action of a world war, we are learning as never before to appreciate the viewpoint of others, and service, a catchword of the past, has found its definition.

To summarize, then, the architect himself may establish better relations with a client through a more complete appreciation of the client's viewpoint and by establishing his own organization on a basis which will insure complete protection to the man who builds.

Construction Problems

REBUILDING THE CUSTOM HOUSE AT BOSTON, MASS.

By N. A. RICHARDS, ASSOC. MEM. A. S. C. E.

WHEN the demands of business a few years ago forced the Government to consider a new Custom House in Boston, a unique problem was presented. The old Custom House, built in the administration of Andrew Jackson, had been a landmark in Boston for many years. Built of granite, with a low central dome and four heavy pediments supported on massive columns, the old building appeared, through the sturdiness of its construction, to have successfully resisted the encroaching waves of modern construction. To think of tearing down the old building was out of the question; it was too firmly entrenched in the hearts of the people. The site it occupied, however, was the strategic location for the proposed new building.

At last the happy solution presented itself to the architects, Messrs. Peabody & Stearns, of obtaining the required space by making the new building in the form of a tower, and — to maintain inviolate the sentiments of the citizens — utilizing the old building as a base for the new. A design carrying out this idea most excellently, resulted. The new tower of granite rises five hundred feet above the street, and the strong lines of the old building, reaching up to about the level of the fourth floor of the tower, form a harmonious base for the new.

Even the interior appearance of the old building was retained. The central dome had roofed a finely proportioned rotunda, open above the first floor to a height of sixty feet. In the completed new building this has been restored, and the structural features of the tower have not been allowed to disturb it.

The tower in its lower stories is about sixty feet by seventy feet in plan. There are eight interior columns throughout the typical stories. If these had been allowed to run through to the foundations, however, the dome and the rotunda of the old building would have been ruined. To avoid this, trusses were introduced just above the old dome, to carry these columns and transmit their loads to large supporting columns lo-

cated under the walls of the tower and outside the rotunda. These trusses are about twenty-five feet deep over all with their top chords in the fifth floor level. They span the full width the short way of the tower and are very heavy, supporting, as they do, practically the full height of the tower.

The wind bracing of the tower is entirely concealed in the walls. It is made up of knees where space would permit, and gussets elsewhere. An assumed pressure of thirty pounds per square foot was provided against.

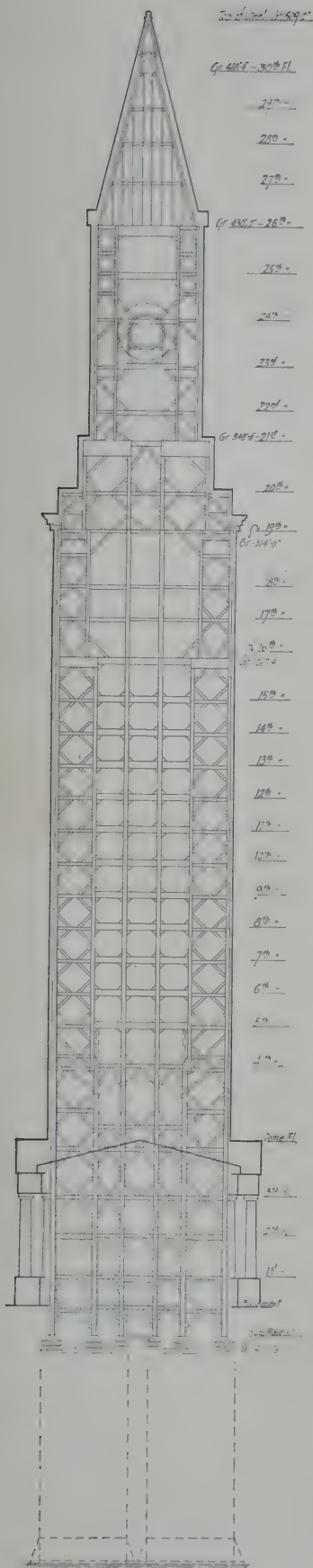
The old building had rested on short wooden piles driven into the rather soft clay which generally under-



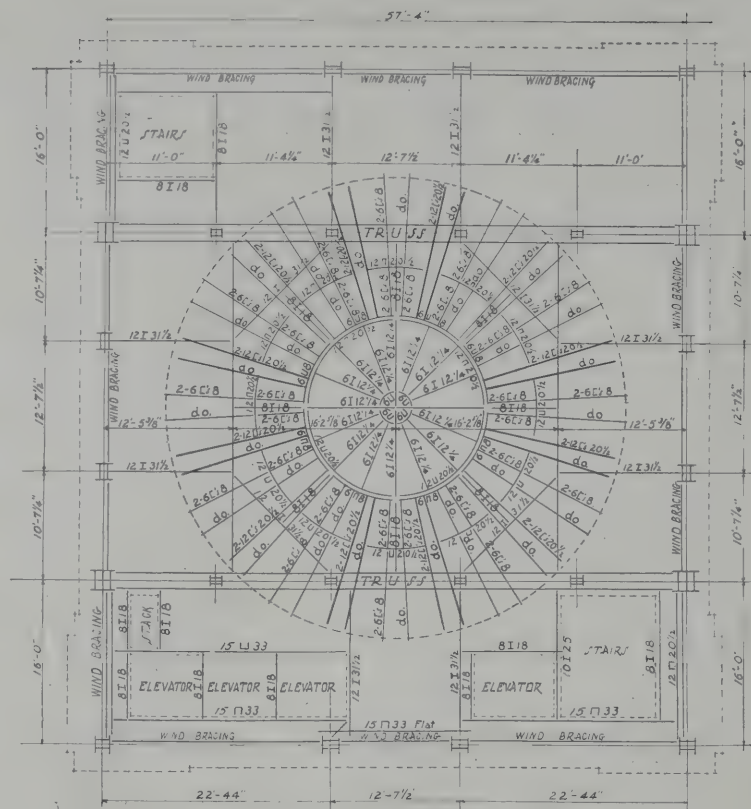
General View of Boston Custom House

Peabody & Stearns, Architects

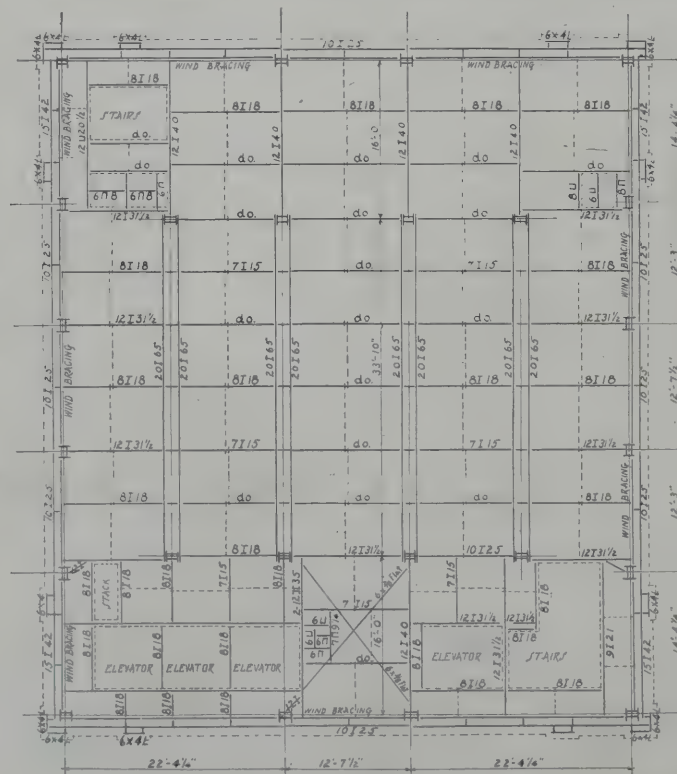
Purdy & Henderson, Consulting Engineers



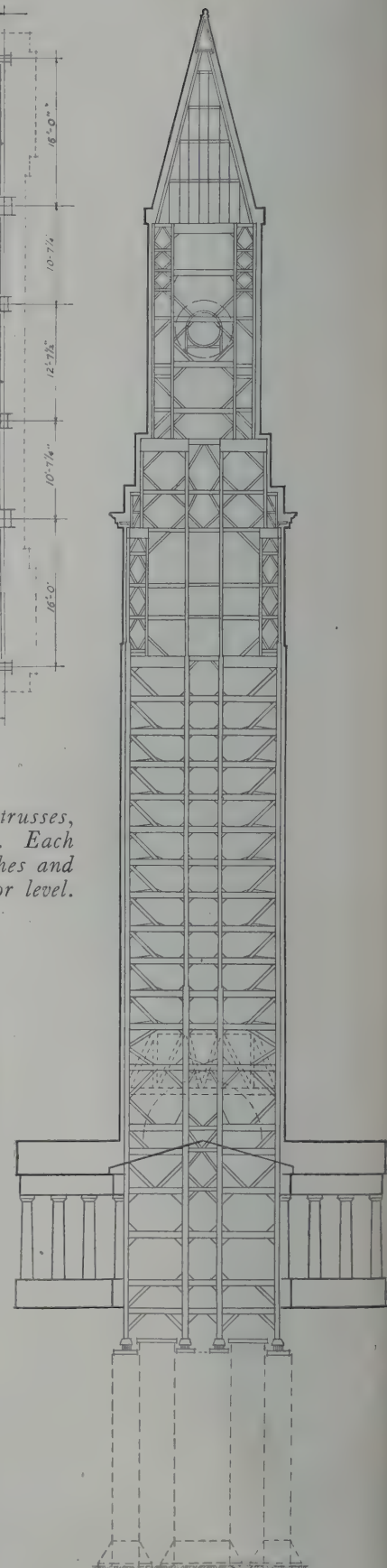
Wind Bracing at North and South Elevations

Framing Plan at Fifth Floor Level
Showing Details of Dome Framing

The interior columns above the fifth floor are supported by two trusses, a detail drawing of which is reproduced on the opposite page. Each truss carries four columns and has a span of 57 feet, 4 inches and a height of about 25 feet, its top chord placed at the fifth-floor level.



Steel Framing for Typical Tower Floors



Wind Bracing on East and West Elevations

UNITED STATES CUSTOM HOUSE, BOSTON, MASS.

PEABODY & STEARNS, ARCHITECTS

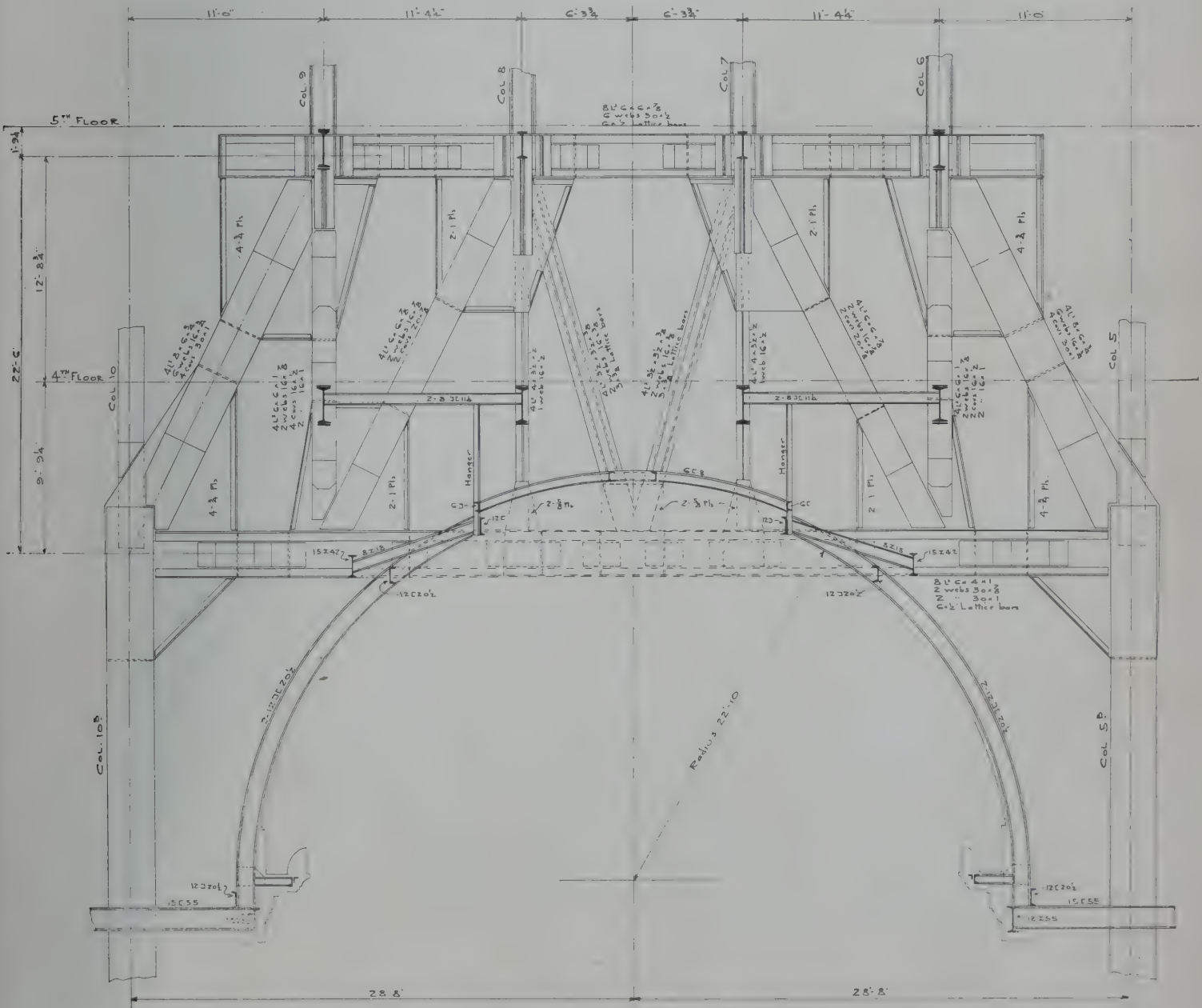
PURDY & HENDERSON, CONSULTING ENGINEERS

lies this portion of the city. The depth of this bed of clay was considerable; in fact, the first strata reached which would offer appreciably better support than the clay is nearly one hundred feet below the level of the street. Here a bed of heavy gravel and boulders occurs, overlying the rock. The great height of the tower, with its heavy granite walls, resulted in enormous loads concentrated over a very limited area. Furthermore, the interior columns being carried on trusses, and their loads thrown on the exterior columns below the fifth floor as described above, the concentration of loads was thereby much increased. As water was found not far below the subbasement in the old building, the foundations for the tower therefore presented a considerable problem. The

solution finally adopted was to sink large caissons under air pressure to the level of the gravel and boulder strata, approximately one hundred feet below the street. This strata furnished unyielding foundations.

The sinking of these great caissons inside the old building caused considerable disturbance to that venerable structure. As the caissons were forced down they sucked the adjoining clay and piles with them to such an extent, that several large cracks developed in the granite window heads, columns and walls. No serious damage was done, however, and all was finally restored.

Today the old building and the new tower blend in a harmonious whole, as a memorial to a successful compromise of business and sentiment.



Detail of Trusses over Rotunda Dome Supporting Interior Columns
United States Custom House, Boston, Mass.

Peabody & Stearns, Architects

Purdy & Henderson, Consulting Engineers



ARTHUR DURAND ROGERS

Arthur Durand Rogers

AN APPRECIATION OF THE MAN AND HIS WORK

His magic was not far to seek,
He was so human! Whether strong or weak,
Far from his kind he neither sank nor soared,
But sate an equal guest at every board:
No beggar ever felt him condescend;
No prince presume; for still himself he bore
At manhood's simple level, and where'er
He met a stranger, there he left a friend.— *Lowell.*

WITH the passing of Arthur Durand Rogers, a life dedicated with whole-souled love to the advancement of the architectural profession has ceased to impart active thought to its problems, will no longer aid in bearing its obligations or participate in its joys and successes. The work that he has done, however, has earned for him a meed of recognition that will make his name live in the field which he chose for his labors. The best years of his busy and useful life were unselfishly devoted to an ideal—the development of architecture in America, and the stimulation of the members of the profession to greater efforts, that architecture might attain the dominant position to which its importance, as the mother of the arts, entitles it. An intuitive comprehension of the correct value of work and men was his fortunate possession, and this faculty, combined with a breadth of vision and a constructive mind, enabled him to aid and serve in an exceptional manner, as few men have, what he was pleased to call, the “noblest profession.”

He enjoyed a wide acquaintance among architects and many others interested in the advancement of the building industry, and as editor of this journal, extending over a period of twenty-seven years, he exerted an influence of no small value on our architectural development, in presenting to the profession the best examples of current work and most progressive opinions. He possessed the same high ideals that are inherent in the leaders of the profession, and though he elected to be a publisher, he was essentially an architect in thought.

While he was generous with his praise, he was not unmindful of our shortcomings, and was equally candid and fearless in his criticisms. It was characteristic of him to ask, about a year ago, “In What Manner, and By What Means Can the Practice of Architecture be Developed in Order to Win a Larger Recognition?” Having seen a problem, this was his method of urging us to work out the solution.

He delighted in seeking merit among the younger men and hailed with joy the formation of the Architectural League of America, by the members of the architectural sketch clubs. He gave freely of his time and counsel in its formative period and did much to promote the extension of educational facilities which was the prime reason for its existence. When the work was taken over by the Institute, he, together with members of the League, felt that it was in safe hands and would be properly conducted. He never allowed the friendships formed among its members to lapse, and

delighted in talking over the scenes of the conventions and recalling the personnel of the membership.

He enjoyed exploring, usually during the early morning hours, the cities he visited, as much to get the atmosphere of the place as to pick out, as he did instinctively, the best of the recent buildings and compare his opinion of them with that of the local architects. His constant aim was to make his publication a living force, to keep in advance of the thought of the profession, and to lead and guide it.

One of the interesting features of *The Brickbuilder* was the series of competitions he held from time to time, for in them he was able to enlist the creative faculties of the younger men in solving current problems and, at the same time, awaken an interest in architecture among manufacturers of building materials and the users of their products. He foresaw, as few men have, that the largest opportunity for the appreciation and growth of architecture lay in extending a knowledge of it among the people who had small problems to solve. For twenty-five years *The Brickbuilder* was, to those of us who knew him, a reflection of his own advancing thought. When he changed its name to THE ARCHITECTURAL FORUM it was because his vision had so broadened that he felt the publication could be a forum for us in fact as in name, and he confidently expected us to embrace the opportunity he provided. The publication under both names has always exerted such an influence for progress that it is a most fitting memorial to him, and the inspiration he has left his successors is their greatest heritage.

We are now passing through a period of self-analysis that is bound to be productive of good, and the removal of a man of such abounding vitality and sincerity of purpose as he possessed makes our loss at this time the greater. Even to the last he was busy with plans for his future work in our behalf, and it must have been with keen regret that he felt unable to go on with them.

The profession owes him a debt of gratitude that it can best repay by carrying on the work he was called upon to leave, and by striving to attain the ideal position he wished us to occupy.

He had such a wholesome, sunny disposition, true sense of humor, and such a sane appreciation of the things that make life worth while, that it was a privilege to know him. He was in the full sense of the word a gentleman, a delightful companion and a loyal friend. His whole career was one of public-spirited service, and his work will endure as the mark of a successful life.

For his uplifting influence, breadth of vision, kindly tolerance of our shortcomings, his lifelong labors, love of our work and his affection for us, it will be a delight for those of us who knew him to recall his memory, and a pleasure for the profession to consider itself the richer for his having lived.—ERNEST JOHN RUSSELL.

EDITORIAL COMMENT

A MONTH ago there was little evidence of stabilization in either material or labor markets and no disposition on the part of those investors and others having resources for the erection of buildings badly needed, to go into the market with actual bona fide propositions that would materially aid in bringing about stabilization. The past few weeks have seen a decided change in attitude, however, and it may be safely said at this time that a movement toward the general resumption of building has been definitely started. A conviction founded on the same premises advocated soon after the signing of the armistice by those able to see beyond immediate conditions, that the prices of building materials cannot undergo any appreciable reductions for a long time to come, has now been widely accepted. What was a short while ago a spirit of defiance and policy of waiting for prices to drop has changed to an attitude of almost complete compliance and eagerness to start construction work so that buildings may be ready to participate in the advantage of high rentals as soon as possible.

This hopeful condition has been caused by several factors, all of which were as readily apparent months ago, if only the building industry and public were astute enough to see actual happenings, instead of a future colored by visions of financial stress, unemployment and many other wholly imaginable evils that could exist only by following such a policy as was then conceded conservative and in the best interests of financial stability. The cost of producing all building material has greatly increased, due in the largest part to the higher wages paid, and in smaller degree to the greater cost of raw material. These present costs of manufacturing cannot be lowered, and in view of the high cost of living it is not only necessary but desirable to maintain wages at an adequate rate. The movement of the wage scale is generally conceded to be upward and not down; those difficulties involving wages that have arisen since the signing of the armistice and that have been adjusted, show the adoption of a shorter working day and in some instances a higher rate of pay. Stocks of practically all building materials are low; production was curtailed through the war period and time has been required to recruit the necessary workers and resume normal output. It is realized by every one that eventually the present overwhelming demand for structures of many kinds must be met, but recently a few far sighted and clear thinking men have realized that when the rush does start, it will not be a question of what price will be paid for material, but whether it can be had when it is wanted. An instance of this is shown in two large purchases of material recently reported. A brick dealer bought, at an advance of \$1.00 per thousand over the price the yards were willing to quote on order, a half million common brick, so that he might be certain of having the material delivered in time to meet demand for it. A similar purchase of

lumber was quite recently made for an identical reason.

In the cement market, prices have advanced since the first of the year, and with the large quantities of this material that will be required for extensive road construction to be undertaken in all parts of the country, in addition to a building demand that should soon greatly exceed normal, the probability is that they will advance still further rather than recede.

The labor situation is gradually improving and the prospects are good for an early settlement of wage scales in those branches of the building trades, where demands for higher pay are being pressed. In New York, contractors are anticipating a compromise of \$6.00 per day for the carpenters now on strike, and submitting bids on that rate of wage. Another factor in the labor situation is the greater efficiency that may be counted upon from the workers. During the war period, with great Government structures being built, there was little need for laborers to make special efforts to hold their jobs; work was plenty and as a consequence, less was performed in a given time than would be under other conditions. Today there is competition among laborers, and greater effort is made to hold a job once it is had. Recent tests made on concrete work show reductions of from 30 to 80 per cent in cost with material prices the same, over conditions that held before the close of the war, that are accounted for solely by more efficient labor.

An honest judgment of present conditions forces the conclusion that the price of building construction is as low as it will be for a long period. Further waiting will only complicate the situation, and aside from causing loss of revenue from buildings that should now be under construction, will operate to bring about higher costs later. Large building programs are being planned by many states and cities to take up the slack in labor, and when they are under way the effect on the construction market will be a stimulating one. The opportunity of the private builder to secure the most favorable conditions is right now. Architects should make it their plain duty to convince themselves with regard to present actual conditions and then advise their clients in a positive manner that will offset the unfounded pessimism which has too long held in check the resumption of building.

Senator Calder of New York, speaking at Baltimore recently, made the following significant statement:

"The nation should immediately interest itself in the investment of its labor and surplus capital in the basic industry of construction, because every dollar and every hour of labor thus invested has earning power and will ultimately cheapen the cost of production of commodities.

"This problem will be met if public interest is centered upon it — if the people as a whole cannot solve this problem, no committee or officials of the people can settle it."

NATIONAL PRODUCTS

A Comparison

Sherardizing Steel & Creosoting Wood

The Purchasing Agent for one of the largest Hydro-Electric Power Companies, upon having the Sherardizing Process thoroughly explained to him, remarked:

"Then Sherardizing, as a method of protecting steel, is like creosoting for protecting wood."

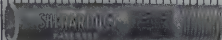
He has since insisted upon the delivery of SHERARDUCT on all conduit orders.

The two processes are markedly similar, both in treatment and results attained. SHERARDUCT is the only Sherardized Rigid Steel Conduit. Both interior and exterior surfaces are Sherardized and further protected by coatings of a clear acid- and alkali-proof enamel, baked on. Has the combined advantages of zinc and enamel protection. Double value for one price. We can't tell you all about it here; write for complete information.

National Metal Molding Co

1113 Fulton Building
Pittsburgh, Pa.

Atlanta	Chicago	Havana	Paris	Salt Lake City
Boston	Dallas	Los Angeles	Philadelphia	San Francisco
Buenos Aires	Denver	Manilla	Portland	Seattle
Buffalo	Detroit	New York	Rio de Janeiro	St. Louis 119



SHERARDUCT

ECONOMY

BLACK ENAMELED

SHERARDUCT

The Rigid Steel Conduit with both surfaces Sherardized and Enameled. ECONOMY Black Enameled Conduit. There's none better. Write for Bulletin 50



FLEXTUBE

FLEXTUBE

Interwoven — Seamless — Non-Collapsible. Inseparable and Double Compound. Easy to fish and every foot of every coil can be used. Write for Bulletin 151



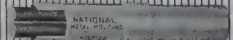
"National"

Outlet Boxes and Covers. A box for every purpose and a purpose for every box. Furnished in Sherardized or Black Enameled Finish. Write for Bulletin 250



"National" BRACKETS

Complete with insulators. Sherardized Bases. Wires run straight through. No Tie-Wires necessary. Send for Bulletin 602



NATIONAL METAL MOLDINGS

NB 122

NB 333

"National" METAL MOLDINGS

For two, three and four wire surface wiring. Lowest installation cost of any metal wiring system. Write for Bulletin 102



FLEXSTEEL

Distinctive flat surface. Easy to fish, cut and strip. Ideal for wiring either old or new buildings. A complete line of improved fittings. Write for Bulletin 201



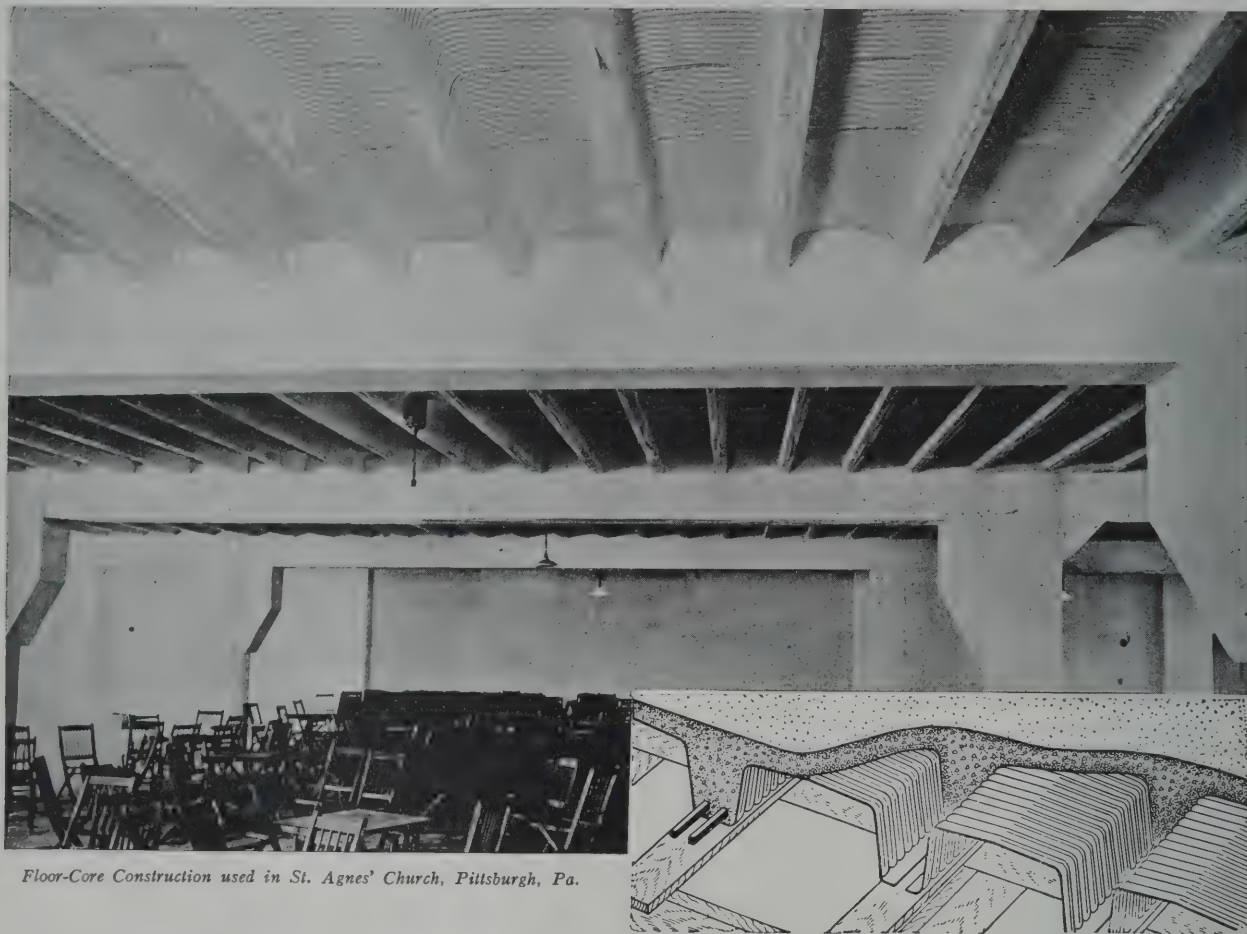
"National"

Locknuts and Bushings. Threads sharp, clean and true. "National" quality products. Exclusive self-cleaning feature in the bushings. Write for Bulletin 350



"National" FIXTURE STUDS

Sherardized Stamped Steel. Hollow Stems. Stronger, and yet lighter, than any other stud on the market. Write for Bulletin 400



Floor-Core Construction used in St. Agnes' Church, Pittsburgh, Pa.

For Economical and Permanent Floors — Berger's Steel Floor-Cores and Concrete

These long-span, fire-resistive floors offer big advantages in Schools, Hotels, Office Buildings, in fact, in all structures where live load does not exceed 200 lb. to the square foot.

Fewer columns restrict light and arrangements. Less supporting structure is needed; the sturdy concrete T-beams will cover spans up to thirty-five feet and the weight of this floor is much less than that of most other types of fire-resistive construction.

The thickness of the floor, the dead air space, when ceiling is attached, and the natural qualities of the concrete all help to deaden vibration and noise and to give a maximum of fire resistance.

Floor-cores require no centering or form work except easily placed temporary supports. The cores go into place very quickly and the concrete can be poured without waste or loss of time.

Floor-cores are made in heights of four to fourteen inches and in standard widths of 20 and 25 inches. They are made of 22 and 26-gauge steel. The former is the removable type which can be used from five to eight times.

Ask your nearest Berger office for full information

The Berger Manufacturing Company, Canton, O.

Branches: Boston New York Philadelphia Chicago St. Louis Minneapolis San Francisco
Export Department: New York City, U. S. A.

BERGER

**EXPANDED METAL LATH-FLOOR CORES-REINFORCING PLATES-METAL LUMBER
STEEL FILING CASES-LOCKERS-FACTORY STORAGE BINS AND SHELVING
STEEL CEILINGS-ROOFING-SIDING AND OTHER PRESSED STEEL PRODUCTS**





THE EDITORS FORUM



WE present in this issue a group of carefully selected illustrations of the new Hotel Pennsylvania in New York City that show the high standard of excellence attained by the architects, McKim, Mead & White in this work. There is special significance to this building's character when it is recalled that its construction was carried on in war-time, which necessitated careful use of simple and what in normal times would have been considered inexpensive materials, perhaps at one time thought lacking in dignity for use in a great metropolitan hotel. This building required consideration from the investment point of view fully as much as from the architectural, and it was necessary to eliminate entirely all thought of using marbles and correspondingly expensive finish usually associated with work of this character. These restrictions rather proved an inspiration than a handicap, and in meeting the conditions imposed, the architects have contributed a valuable example of appropriate and dignified use of minor materials.

Plaster, terrazzo, artificial marble, tile, simple wood paneling and decorative painting, all used in a manner to emphasize their desirable qualities and with a fine regard for color combinations, take their place harmoniously and present an ensemble that is far more architectural and decorative than many examples that can be called to mind, where no limitation was placed upon the selection of material. It is one more example and a very convincing one of the oft repeated truism, that a building is a success architecturally in proportion to the thought and creative ability expended on its design, and without reference to the materials entering into its construction.

IT is along such lines as this that architects can greatly aid the revival of building during the period of readjustment through which we are passing. Many of our conservative ideas of the fitness of particular materials for certain uses can be given close scrutiny with profit to our architecture and also those clients who must keep the cost of their buildings to a figure that will insure a proper return on their investment. Precedents have in the course of years been established that in normal times would be little questioned, but today we have new problems to solve and precedent must not deter us from seeking new solutions. The prevalent and obstructive theory held by many that construction costs are too high to warrant investment of funds in building, may to a large extent be caused by thinking in the same terms of building as we were accustomed before the war. If we were to consider seriously that present building conditions demand a new and different view of the use of materials, it is not unlikely that a more constructive conception of future work would occur.

ANOTHER factor in the consideration of present building inactivity is the tendency on the part of many to over-estimate the increases that are in effect. Many rough estimates are quickly made for determining probable cost and, in the absence of complete drawings and specifications, figures are submitted that provide for unknown exigencies and, as a result, an abnormal cost is shown that deters the client from giving further consideration to the matter and creates a prejudice that cannot easily be overcome.

This thought is borne out in a statement emanating from the Division of Public Works and Construction Development of the Department of Labor. In it are related the circumstances connected with bids recently asked for by the Bureau of Yards and Docks of the Navy Department on The Seaman and Navigation Building at Annapolis, Md., from which it is quite conclusively shown that present general estimates are above building costs. The department's estimate for this building was \$800,000 and of eighteen responsible contractors of the country who bid on the work, all but one submitted figures below that estimate; one was as low as \$658,927 and most of them were under \$700,000. This shows about seventeen per cent difference between estimate and lowest bid and this incident is considered by the Division of Public Works as tending to confirm its belief that when architects and prospective builders call for actual bids on detailed specifications and working drawings, they may expect to receive figures from ten to fifteen per cent lower than general estimates, and much lower than is popularly believed. This conviction was expressed in the editorial of our February issue and we fully endorse the deductions of the Division of Public Works; careful investigation of building costs, planning in which the use of simple and easily obtained materials is given due consideration, and requests for bids on actual working drawings and full specifications will disclose building prices that will be in proper proportion to the increased revenue that may be had from buildings today.

ROTCH TRAVELING SCHOLARSHIP

For two years on account of war conditions there has been no award made of the Rotch Traveling Scholarship. The conditions do not as yet justify study abroad but the committee announces the examinations will be resumed in 1920 and that the age limit which was heretofore set at thirty years will be extended during 1920 and 1921 to thirty-two years, so that those who did not have an opportunity to compete during the past two years will still be eligible. Further information may be had by addressing the secretary, C. H. Blackall, 20 Beacon street, Boston, Mass.



NAVY AND WAR OFFICE BUILDINGS, WASHINGTON, D. C.

AS SEEN FROM THE WASHINGTON MONUMENT

Architectural Plans Prepared by a Committee of the Bureau of Yards and Docks

Navy Building: main building, 860 feet by 60 feet; with nine wings, each 500 feet by 60 feet

War Building: main building, 780 feet by 60 feet; with eight wings, each 500 feet by 60 feet

*1,885,000 Square Feet of Floor, Including Roof,
Concreted in Approximately Three Months*

First pile driven March 25, 1918.

Total number of piles 5052; piles completed May 28, 1918.

First set of floor forms erected April 20, 1918.

Last portion of roof concreted July 29, 1918.

Time for concrete work, approximately three months.

Navy Department started moving in August 17, 1918.

War Department started moving in August 31, 1918.

Both buildings ready for complete occupancy September 24,
approximately seven months from date of signing contract.

[“]TURNER *for* CONCRETE[”]

Turner Construction Company

Philadelphia

Pittsburgh

New York

Buffalo

Boston

THE ARCHITECTURAL FORUM

VOLUME XXX

NUMBER 4

CONTENTS for APRIL 1919

PLATE ILLUSTRATIONS

	Architect	Plate
HÔTEL PENNSYLVANIA, NEW YORK CITY	<i>McKim, Mead & White</i>	49-58
CARMELITE CONVENT, SANTA CLARA, CAL.	<i>Maginnis & Walsh</i>	59-64

LETTERPRESS

	Author	Page
THE VICTORY ARCH, MADISON SQUARE, NEW YORK CITY.....		Frontispiece
THE EDITORS' FORUM.....		19
NEW YORK STREET DECORATIONS FOR PARADE OF OVERSEAS TROOPS.....	<i>R. H. Shreve</i>	93
HOTEL PENNSYLVANIA, NEW YORK CITY.....		95
<i>McKim, Mead & White, Architects.</i>		
Mechanical and Kitchen Equipment.....	<i>Frederick G. Colton</i>	97
Steel Framing Features.....	<i>Theodore C. Tuck</i>	104
Design and Decoration of Public Rooms.....	<i>Gerald C. Holmes</i>	105
BUILDINGS FOR THE MODERN FARM.....	<i>Elisha H. Janes</i>	109
Part II. (Concluding paper) Planning of Minor Buildings		
FARM BUILDINGS OF W. B. OSGOOD FIELD, ESQ., LENOX, MASS.....		112
<i>John C. Greenleaf, Architect.</i>		
CARMELITE CONVENT, SANTA CLARA, CALIFORNIA.....		115
<i>Maginnis & Walsh, Architects.</i>		
THE MODEL FOR ARCHITECTURAL REPRESENTATION.....	<i>Edwin S. Parker</i>	119
EDITORIAL COMMENT.....		122

Published Monthly by
ROGERS AND MANSON COMPANY

85 Water Street, Boston, Mass.
Advertising Department, 103 Park Avenue, New York

Yearly Subscription, payable in advance, U.S.A., Insular Possessions and Cuba \$5.00
Canada..... \$5.50 Foreign Countries in the Postal Union 6.00
Single Copies..... 50 cents All Copies Mailed Flat

Trade Supplied by American News Company and its Branches. Entered as
Second Class Matter, March 12, 1892, at the Post Office at Boston, Mass.
Copyright, 1919, by Rogers and Manson Company



THE VICTORY ARCH, MADISON SQUARE, NEW YORK CITY
Carrere & Hastings, Architects

*Erected in honor of returning overseas troops,
New York's own 27th Division passing through it
in the parade of March 25.*

BOSTON
PUBLIC
LIBRARY

THE ARCHITECTURAL FORUM

FOR QUARTER CENTURY THE BRICKBUILDER

VOLUME XXX

APRIL 1919

NUMBER 4

New York Street Decorations for the Parade of Overseas Troops

By R. H. SHREVE

NEW YORK'S welcome, on March 25, to the first of her own troops returning from overseas, gave occasion for elaborate decoration of the city's great avenue and other points connected with the program of the day.

The general scheme of street decoration was under the direction of Mr. Paul Chalfin and was planned in an historical sequence in the order of the official ceremony. The plan began at the City Hall, the oldest section, where the inspiration was derived from our colonial days, the features, flags and color scheme being copied from original documents of the time of Washington's inauguration. The Washington Arch was the beginning of the line of march. Madison Square was the first great point of decoration. Here were arranged ornamental shafts flanking the highway and leading to the Victory Arch across Fifth Avenue between 24th and 25th streets. The great balloons anchored from the column groups, the flags of the

Allies, and by night the great lighting display, were intended to sound the joyous note of welcome.

At the Public Library a most impressive ceremony attended the tribute to the head of the division. A roll of honor gave the names of the battles in which the division was engaged, wreathes were laid at the sarcophagus, and the spirit of the decorations, the purple hangings, the shields and the trophies hung on supporting trees, were symbolic of the ending of the struggle and the commemoration of the sacrifice of those who did not return.

Near the entrance to Central Park, at the 59th street Plaza, was placed the great Arch of Jewels and this, with the colors of the Allied Nations, gave expression to mankind's hope for the future, a lasting peace and the union of the peoples of the world in justice.

The design and erection of the Victory Arch and its wealth of sculptures were directed by Mr. Thomas Hastings of the firm of Carrère & Hastings and by



General View of Victory Arch Showing Approach from Lower Fifth Avenue
Arch Designed by Carrere & Hastings, Architects. Other Decorations by Paul Chalfin, Architect



Copyright, Underwood & Underwood

Night View of the Arch of Jewels at 59th Street Plaza
Paul Chalfin, Architect

Mr. Paul Bartlett, president of the American Sculpture Society, these gentlemen being joint chairmen of the Committee on Art. To arrest the vista down the long avenue, the arch was placed across the roadway, "to give an object to walk towards." The structure is one hundred and twenty-five feet long and one hundred feet high. The Doric order has been used

and the classic lines have been interpreted in a modern spirit, restrained and impersonal, to give a suitable setting for the work of some twenty-five sculptors' collaboration with the architects.

The arch is large in scale, but it is so skillfully proportioned and the architectural ornament has been so deftly modeled that the structure is massive, dignified and impressive. Topping the attic is the sextriga and chariot by Mr. Bartlett, a work of unusual excellence made possible by an adaptation of the horse of the Lafayette statue in Paris, executed by Mr. Bartlett some years ago.

Other sculpture is by Andrew O'Connor, Philip Martiny, Chester Beach, Mrs. H. P. Whitney, Ulysses A. Ricci, John Flanagan, Herbert

Adams and Eli Harvey on the south facade. The north facade shows work by Isidor Konti, Carl A. Heber, Henri Crenier, M. Young, F. M. L. Tonetti, H. M. Thrady, Daniel C. French and Frederick Roth. The panels on the east end are by P. Testi and Charles Keck and those on the west by R. H. Perry. Two lunettes in the passage are by John Gregory.



Copyright, Western Newspaper Union

Central Feature of the Court of Honor at the Public Library
Paul Chalfin, Architect

Hotel Pennsylvania, New York City

McKIM, MEAD & WHITE, ARCHITECTS

THE Hotel Pennsylvania, recently completed in New York City, is a valuable addition to that part of the city opened up for redevelopment at the time the Pennsylvania Railroad erected its great passenger station there, and the Federal Government the new main post office. The station occupies two entire blocks, bounded by Seventh avenue on the east, Eighth avenue on the west and 31st and 33d streets on the south and north respectively. The post office is on the westerly side of Eighth avenue, opposite the station, and the new hotel on the easterly side of Seventh avenue, also opposite the station. It occupies a plot two hundred by four hundred feet, the frontage on Seventh avenue, two hundred feet, being a full block. It is bounded on the north and south by 33d and 32d streets and extends eastward to the Gimbel store.

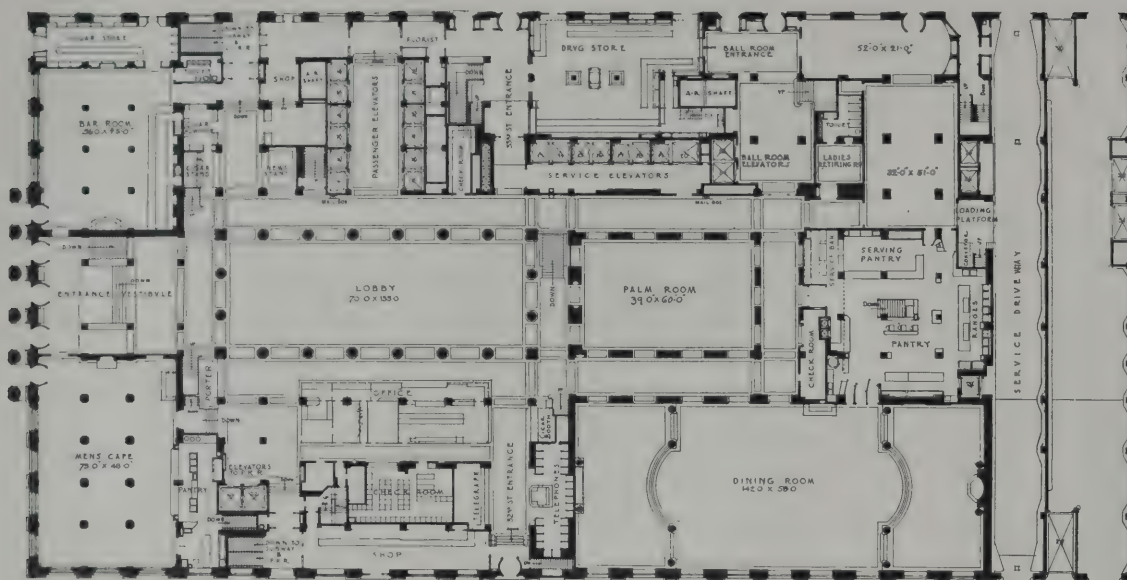
The building has twenty-two floors from street

level to roof and contains twenty-two hundred guest rooms and bath. The entire ground area is built up to a height of four stories, or approximately the same level as the roof of the Pennsylvania Station. Above these floors three large courts opening to the south are introduced, which give four guest room wings to the typical plan. These wings are each fifty-four feet wide and the courts forty feet wide. There are seventeen bedroom floors, with an average of one hundred and twenty-five rooms to a floor. The rooms in the Seventh avenue wing are larger than those in the others and some have outside bathrooms, but the typical floor arrangement shows rooms either side of a central corridor, the baths and closets arranged on the corridor side leaving a vestibule-like entrance to the rooms, which serves to minimize noises that may occur in the corridors.

The lower stories are faced with Indiana limestone



General View of Hotel Pennsylvania from Southwest



First Floor Plan

and treated with an order of Roman Ionic pilasters with lightly rusticated walls between running through three stories, and a fourth story of plain ashlar. This treatment relates the building in design and scale with the station. In the center of the Seventh avenue facade is a portico of six Ionic columns marking the main entrance. The building line has been set back fifteen feet on Seventh avenue to assist in the scheme of producing a plaza in front of the station.

These lower floors contain most of the public rooms as indicated by the plans illustrated herewith. On a small mezzanine floor above the main office, space is provided for the hotel's clerical forces, and on the main mezzanine above, offices for the executives. The guests' baggage is handled on this floor and is conveyed to and from the driveway entrance at the rear of the lot by conveyors.

the large banquet kitchen. The next two floors, of which the second mezzanine is shown, are devoted to service bedrooms, storerooms, sewing and linen rooms, and the telephone exchange, which latter is the largest of its kind ever built.

At the easterly end of the third, or first bedroom floor, are two complete Turkish baths, one for men and one for women. The women's department is entered by a direct stair from the second bedroom floor, which is to be reserved for women guests. Each of the Turkish baths has a plunge and ample equipment of all other desirable features. All the water is sterilized by the violet ray system as well as by the regular filter system, and in addition is constantly renewed.

The easterly fifty feet of the first floor area under the easterly court is occupied by two parallel drive-

ways, a service drive for the hotel with its loading platforms, elevators to workshops above and storage rooms and kitchen below, and conveyor to baggage storage on the mezzanine over; and at the extreme east a service drive for the adjoining Gimbel

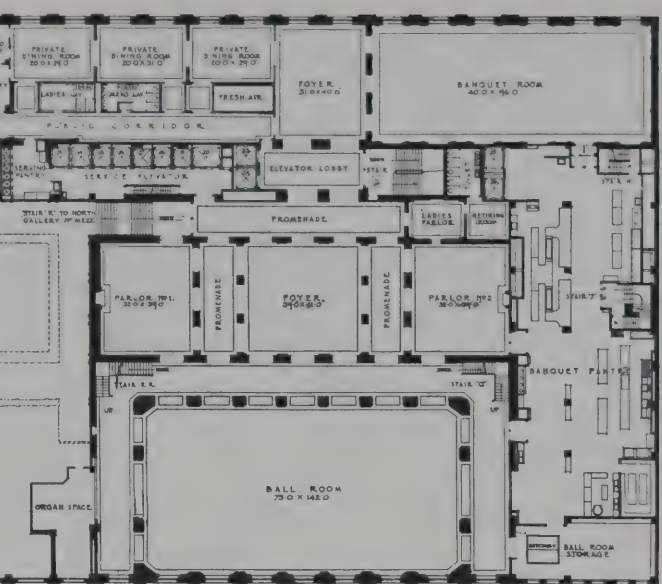


First Mezzanine Floor Plan

Brothers' store with elevators and loading platform to care for the store deliveries which are now crowding the 33d street pavements.

The basement floor has direct entrances from the platform of the 34th street express station of the Seventh avenue subway. At the 33d street side of the hotel there is a wide passage under Seventh avenue connecting directly with the Long Island Railroad station and at the 32d street side a similar passage for Pennsylvania Railroad passengers.

The bedroom stories are contained in a shaft faced with buff colored brick, with a crowning feature consisting of a three-story order of pilasters with a main cornice of terra cotta. A structure on the Seventh avenue wing roof contains the roof garden



Ballroom Floor Plan

restaurant, on the floor above which is an extension of the elevator pent house. The second wing roof is left uncovered for use as an outdoor after-dinner lounging space accessible from the roof garden by a bridge across the first court.

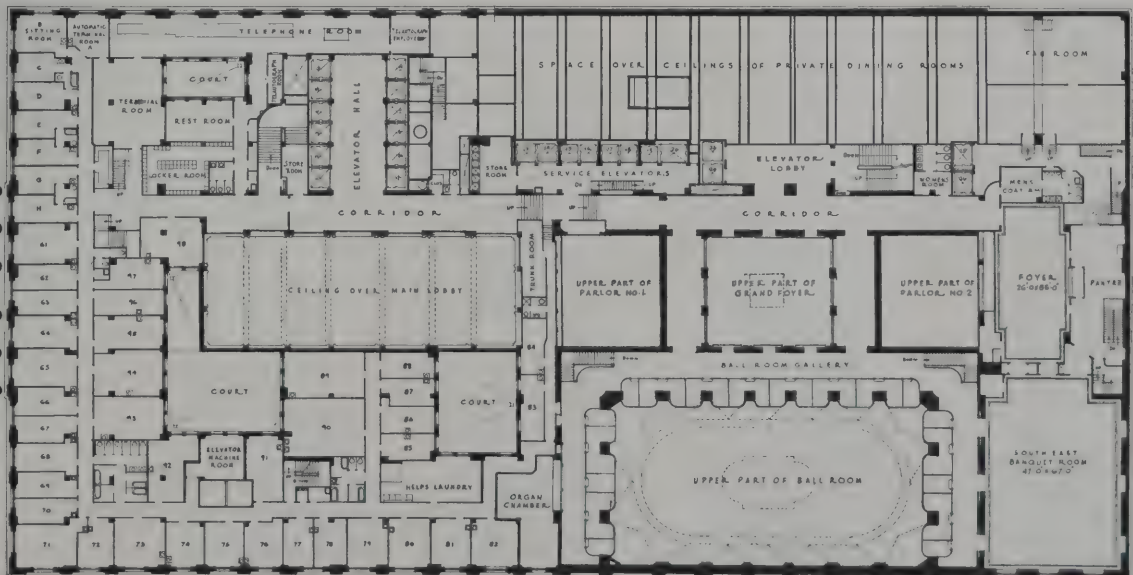
The roofs of the two easterly wings are left open for future development and provision is made in the framing for connecting these roofs with bridges similar to that in the first court to provide for a complete scheme of circulation.

Mechanical and Kitchen Equipment of Hotel Pennsylvania

By FREDERICK G. COLTON

IN planning the mechanical equipment for a city hotel on a lot 400 feet by 200 feet, with twenty-two hundred guest bedrooms, twenty-two hundred bath-rooms, dining-rooms, ballrooms and other public spaces, it was at once evident that one basement floor of about 60,000 square feet would not be sufficient for the equipment and for 2000 employees' accommodations. And although

there are no power and no large electric generator plants in the building, still it was found that not one but two additional basements would be required to



Second Mezzanine Floor Plan



Detail of Main Entrance on Seventh Avenue

house this mechanical equipment and give storage space below the street level. This was the more evident also because about twenty per cent of these two additional areas or floors was lost to the hotel

by the Pennsylvania Railroad tunnels in 33d and 32d Streets taking up space inside the building lines. Therefore, except for some spaces on the upper floors given over to this equipment, three floors, or approximately 160,000 square feet, are used in this way.

SUB-BASEMENT FLOOR. The lowest or "sub-basement floor" is thirty-nine feet below the street level. On this floor are the following plants together with pumps, machine shops, storerooms, locker rooms, toilet rooms, corridors, stairs, elevators, etc.

Laundry Plant	20,000 sq. ft.
Refrigeration Plant	5,300 sq. ft.
Incinerator Plant	1,000 sq. ft.
Electric Plant	4,300 sq. ft.
Plumbers' Plant	4,000 sq. ft.
Vacuum Cleaning Plant	
Compressor Plant	
Ventilation Fans	

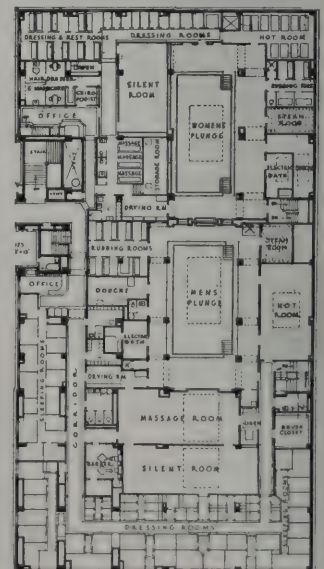
The laundry is 200 by 130 feet or about 20,000 square feet in area and is divided into three parts, the ironing room, the washroom and the guests' laundry. The ironing room and washroom are planned large enough to have in future, if necessary, additional washers, ironers and extractors. The laundry equipment is capable of turning out more than one hundred thousand pieces

a day and about two hundred employees are kept constantly busy.

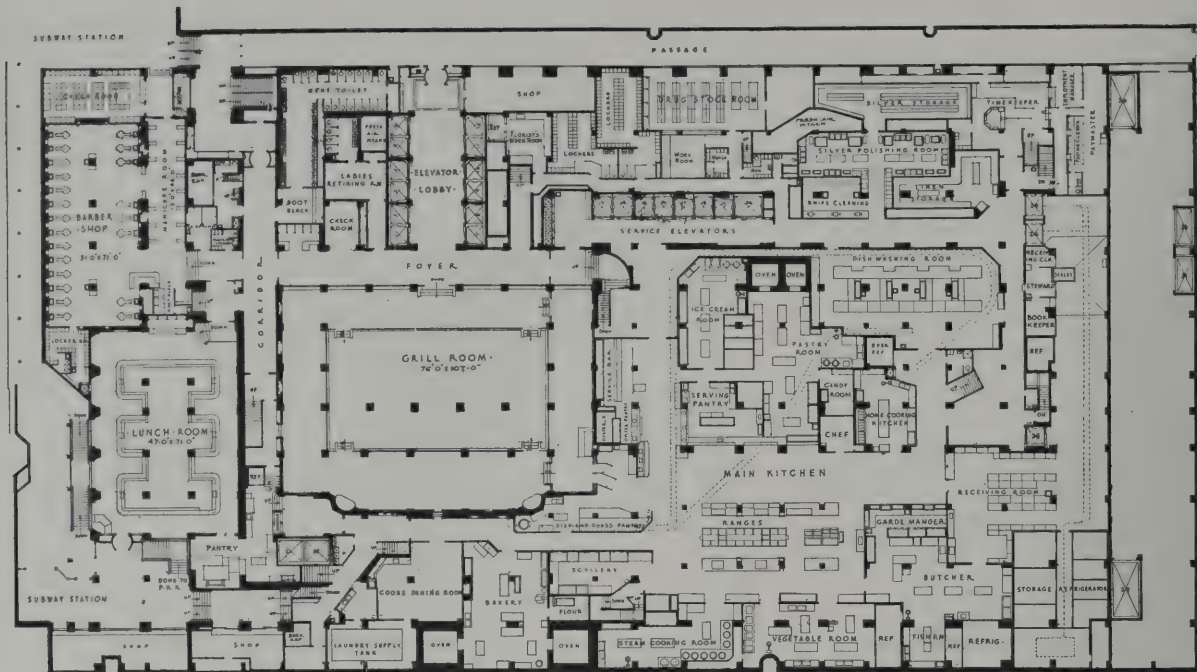
There are ten washers for the hotel and four smaller washers for the guests' work; twelve over-



Typical Floor Plan



Turkish Bath Section of Third Floor



Basement Floor Plan

electric pumps to take care of the ground water.

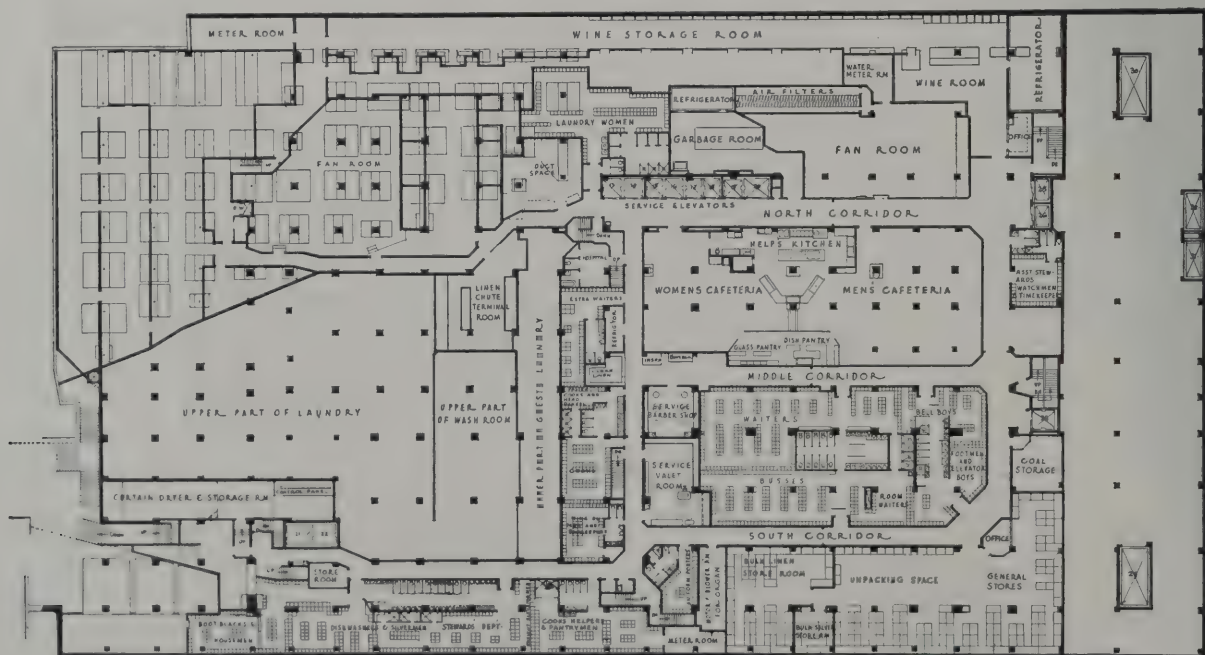
The remainder of the sub-basement floor is given up to supply rooms, storage rooms, machine shops, paper baling room, elevator machinery, toilet and locker rooms.

SUB-BASEMENT MEZZANINE FLOOR. The 50,000 square feet of space on this floor are used largely for employees. Here are large toilet and locker rooms for 1200 people, a cafeteria dining room for men and women, an employees' barber shop and an employees' valeting room, together with a ventilation system of ducts, fans, air washing machines, motors and air filters, a large general bulk storeroom and storage

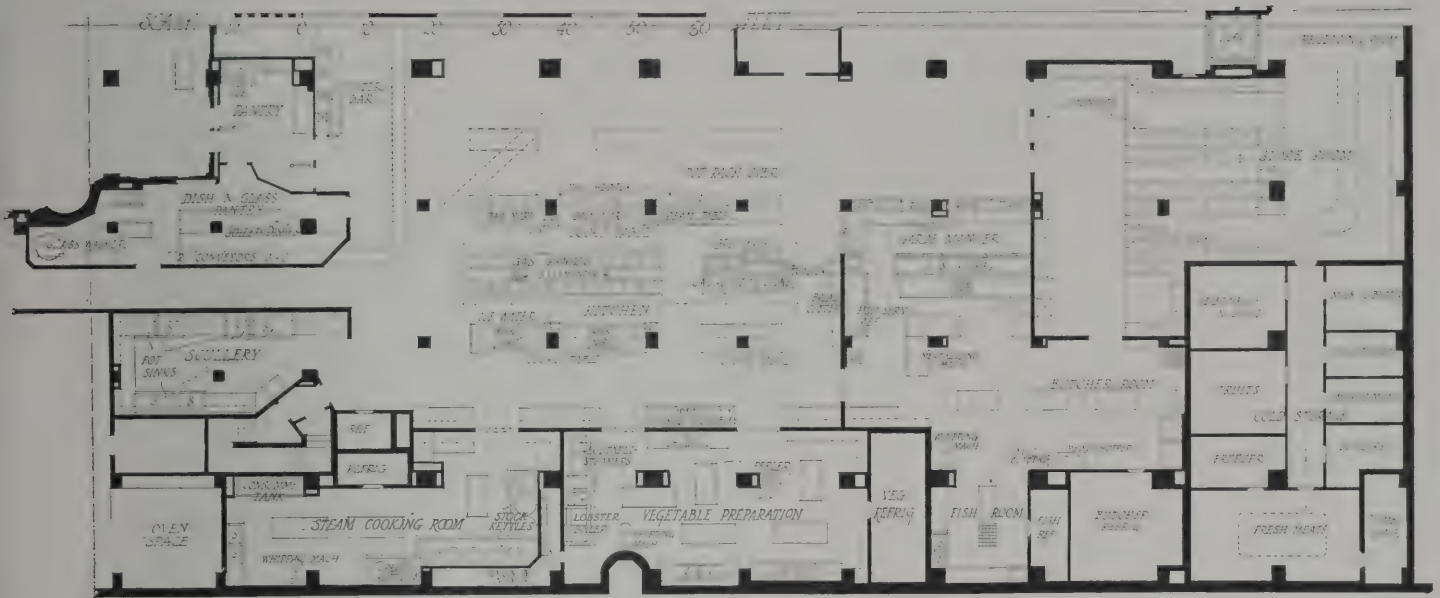
space, coal room, and a large wine storage room with a refrigerator and an extensive range of racks.

BASEMENT FLOOR. The basement floor has an area of about 60,000 square feet. Here are the main kitchen and its dependencies, the grill room, lunch room, guests' barber shop, toilet rooms for guests and for employees, locker rooms, receiving room for steward and his storerooms.

In the main kitchen the bulk of the food preparation and cooking is done for the entire building but in addition to this kitchen, there are throughout the house six pantries or kitchens where food is cooked and served. Also on each of the seventeen bedroom



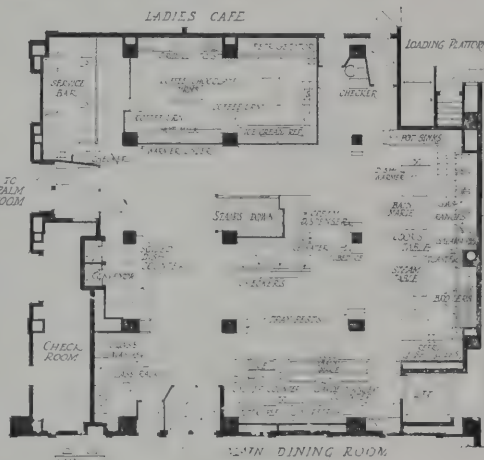
Sub-Basement Mezzanine Floor



Detailed Plan of Main Kitchen, Basement Floor

floors, there is a small waiter's pantry for room service. These pantries are equipped with a dish heater, an egg boiler, a coffee urn and a refrigerator. A dumb waiter service of six dumb waiters connects each floor pantry with the main kitchen. These pantries were found necessary for good service because of the large number of rooms, about one hundred and twenty-five, on a floor.

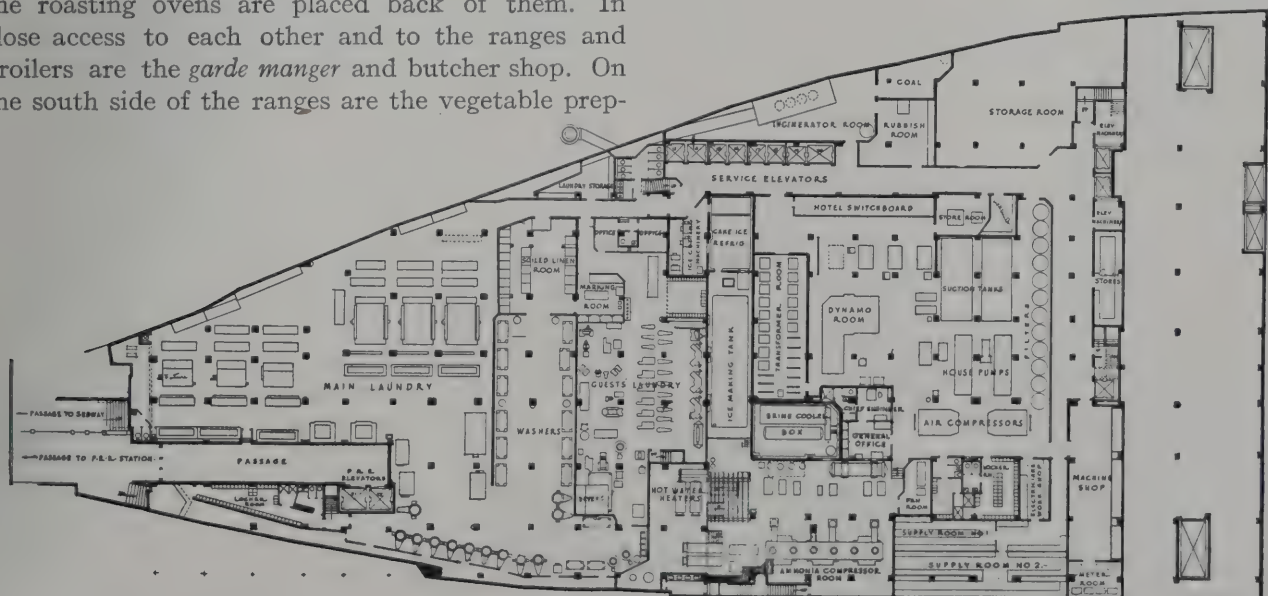
The main kitchen is planned for good, quick service without overcrowding. The ranges are gas heated and placed back to back, giving a frontage of sixty feet. The broilers extending twelve feet are in a separate group and the roasting ovens are placed back of them. In close access to each other and to the ranges and broilers are the *garde manger* and butcher shop. On the south side of the ranges are the vegetable pre-



Plan of Serving Pantry on First Floor

paration room and the steam cooking room with the stock boilers and steam kettles. The scullery is a large room quite near the ranges where all the pots and pans are washed in great tanks of hot water and steam. On the north side of the main corridor of the kitchen are the serving pantries for coffee, pastry, fruit, ice cream, and for breakfast service. Here too, is the chef's office, centrally located, so he may have proper supervision. The "Home Cooking Kitchen" is a special feature of the hotel. Here

are cooked many home dishes that hotel guests never get properly prepared in the usual hotel menu.



Sub-Basement Floor Plan

The dining spaces are as follows:

		Sq. Ft.	Seating
Help's Cafeteria,	120'x48'	5800	600 people
Officers' and maids' Cafeteria,	150'x25'	3750	400 people
Grill room,	76'x91'	6900	450 people
Lunch room,	47'x71'	2300	110 people
Men's café,	73'x48'	3500	230 people
Dining room,	142'x58'	8200	650 people
Palm room,	39'x60'	2400	160 people
Private dining rooms,	50'x20'	1800	100 people
Banquet room,	96'x41'	4000	300 people
Ballroom,	140'x60'	8500	800 people
Roof restaurant,	130'x45'	8500	700 people

55650 4500 people

Areas of kitchens and pantries are as follows:

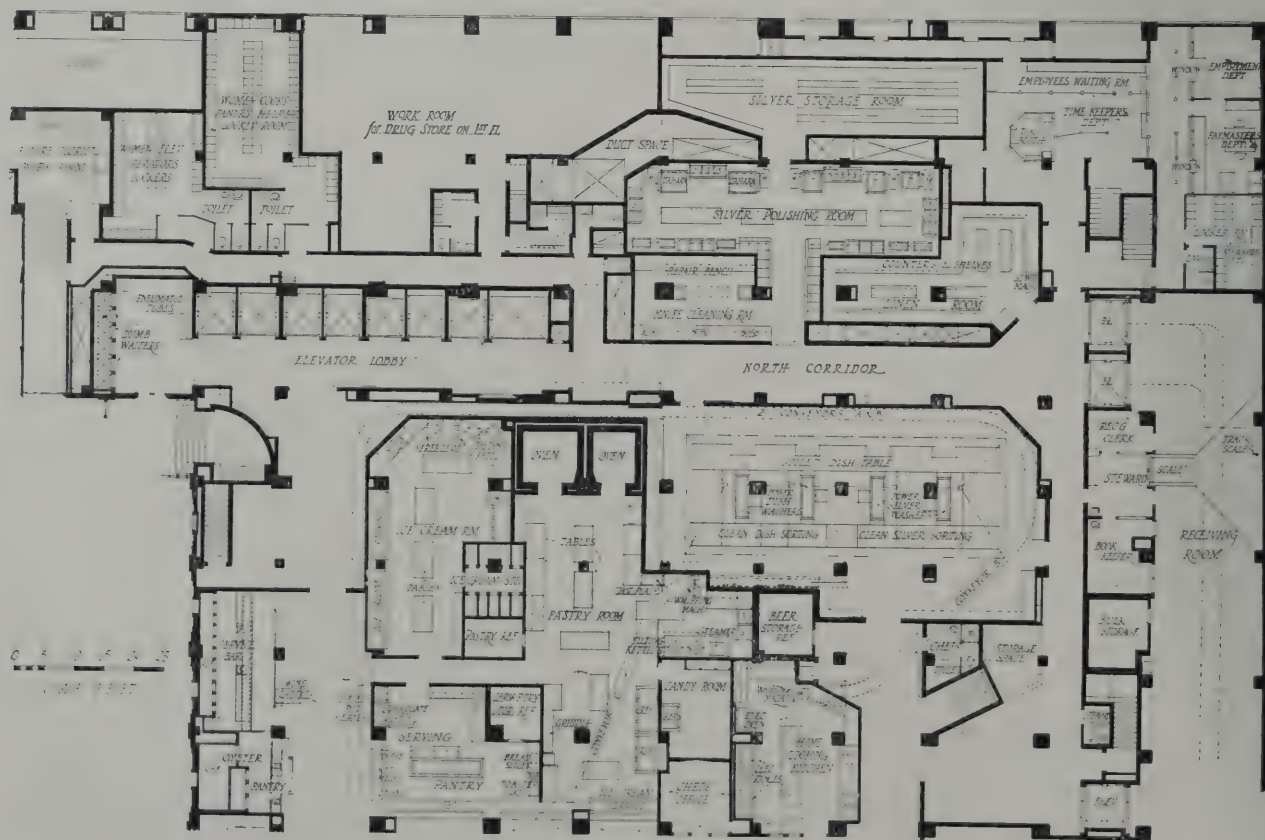
The main kitchen	130'x150'	19500 sq. ft.
Bakeries, pantries, etc.		2500 sq. ft.
Cafeteria sub-basement,	28'x50'	1400 sq. ft.
Kitchen, 1st floor,	60'x60'	3500 sq. ft.
Men's café,	16'x45'	700 sq. ft.
Lunch room,	50'x20'	1000 sq. ft.
Banquet room pantry,	130'x40'	5700 sq. ft.
Roof pantries and kitchen,		6000 sq. ft.

40300 sq. ft.

It is interesting to note that all the hotel supplies are delivered by elevators from the street level to the large steward's department east of the main

kitchen, and also to the general bulk storage room on the sub-basement mezzanine floor. On this floor all meats, vegetables, fruit, milk, butter, eggs, etc., are delivered and placed in large storage refrigerators in the steward's department and distributed as required to the different kitchen departments. The chief steward's department is in very close touch with the kitchen and yet is entirely cut off from it by fireproof walls and fireproof doors. The work of receiving and checking supplies is carried on smoothly and quickly. Platform scales, track scales and overhead tracks, ample shelving, good organization make for the efficiency of this department. Congestion is eliminated and the service runs like clockwork. Great care was taken to make the kitchen in every department sanitary, comfortable and convenient. The ceiling is high, the walls and floor are tiled, the ventilation is very complete and the lighting good. The service for the waiters is simple and direct and the working spaces are ample for the large force of chefs and helpers.

Just outside the grill room service entrance, is the glass washing pantry, where the glassware is washed in a machine for the purpose. Here also the soiled dishes from the grill room are put in trays and carried on a belt conveyor to the dish washing room. In this room also are other machines for washing the silver and china. In a separate room, the silver is polished by machines of different sizes. There are eleven of these machines and beside them are large



Detailed Plan of Pastry Kitchen and Accessories, Basement Floor

sinks for washing the silver after burnishing. Back of this room is a large silver storage room. The knife cleaning room adjoins the silver polishing room with an entrance from the main corridor.

When it is considered that this kitchen with its auxiliary kitchens and pantries provides for over five thousand people at a meal or perhaps thirteen thousand people in twenty-four hours, one can begin to realize that the space and equipment had to be very carefully studied and planned and replanned to meet all the requirements of feeding so many people according to modern conditions and high standards.

AUXILIARY KITCHENS. The lunch room has a small kitchen with ranges, refrigerators, steam tables, urns, etc. The men's café has an electric grill together with refrigerators, steam tables, oyster bar, etc. This service opens directly into the men's café and is quite popular; the idea of having this feature was to give quick and good service with variety of menu. The main dining room also has on the same floor with it a special kitchen. This has proved to be a great success and is strongly recommended. The service is simplified and reduced and the wear and tear on the waiters, climbing up and down stairs for every order from the main kitchen, is eliminated. This kitchen is connected with the main kitchen by stairs, elevator and conveyors so that supplies are procured quickly, and soiled dishes are removed from the floor immediately. This dining room kitchen was a very happy idea and now accomplishes more than was expected of it. There is a serving pantry and part kitchen on the ballroom floor for the banquet rooms, private dining rooms, and for the large functions in the ballroom. This room connects by two large elevators with the main kitchen three floors below. To serve the roof restaurant a serving pantry and kitchen were placed in the roof spaces. This kitchen also connects with the main kitchen by service elevators.

In working out the mechanical equipment, the most approved devices are incorporated, for of modern buildings there is none so complex as a metropolitan hotel nor none requiring greater service from its



Section Showing Trusses Over Ballroom

equipment. Great care and study have been given to the smallest detail in order that every portion of the building would function efficiently. The telephone service is most complete for intercommunication. Nevertheless, supplementing this, there are telautograph receivers and transmitters, time clocks, time stamps and pneumatic tubes, throughout the building. Details of management were determined as the working drawings progressed, and the resulting building is perfectly organized for its use, proving that architecture, structure, and plan form an entity for complete success.

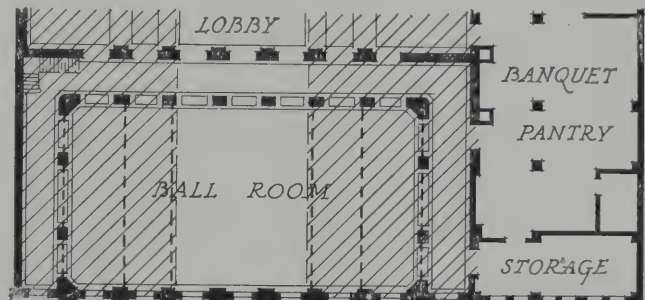
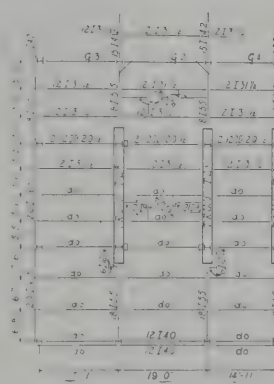
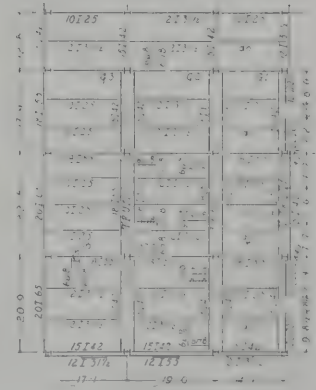


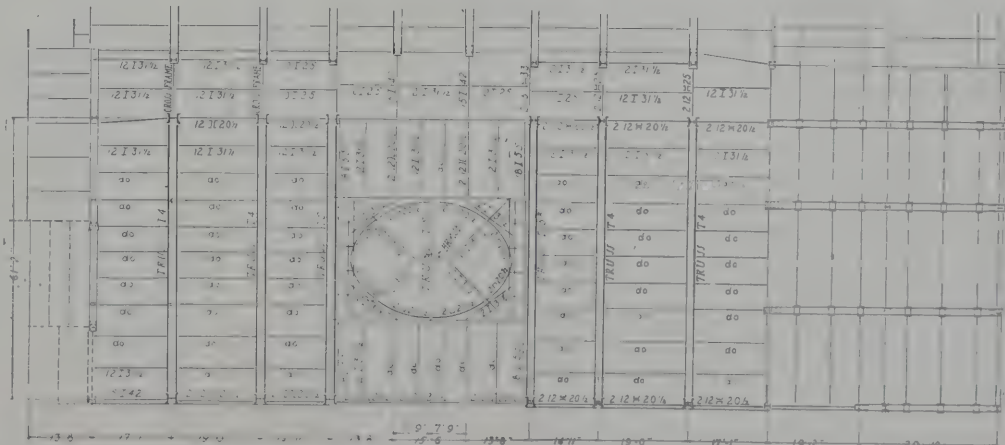
Diagram Showing Relation of Bedroom Wings to Ballroom
Dotted Lines Show Position of Trusses



5th Floor, Wing 3



4th Floor, Wing 3



Third Floor Framing Plan Showing Bottom Chords of Trusses in Wings 3 and 4

Steel Framing Features of Hotel Pennsylvania

By THEODORE C. TUCK, *Engineer for Post & McCord, Inc.*

SOME of the structural features of the Hotel Pennsylvania are of interest, though they do not differ in any striking or unusual degree from those presented in other metropolitan hotel buildings, where a large part of several floors must be planned for open spaces to provide for public facilities.

A portion of the building rests on the roofs of the Pennsylvannia Railroad tunnels. These tunnel roofs when constructed were designed to take the load of a future large building and the footings of the hotel that rest on them were arranged as spread footings with a load of five tons per square foot.

The large rooms that required special framing over them because of the absence of columns are the lobby, main dining room and ballroom with accompanying parlors and foyer, and the large private dining room on the 33d street side. The two pools in the Turkish baths on the third floor also required some specially heavy steel work in order to frame around them and provide for the building overhead.

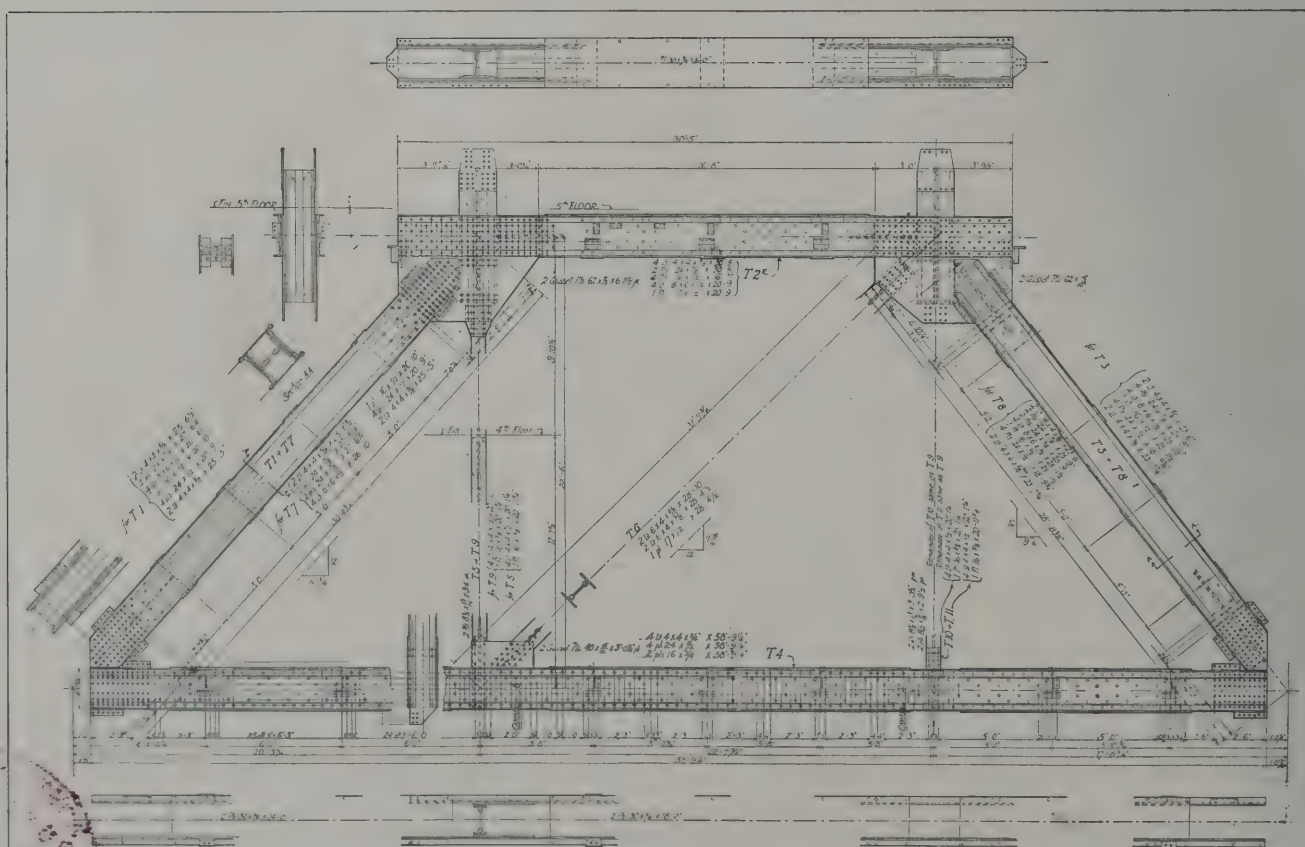
The long spans over these public rooms were taken care of with plate girders with the exception of those over the ballroom, where a series of trusses were used, as shown by diagrams on preceding page.

There are six of these trusses in all, each weighing sixty tons. They extend through two floors, their

top chords at the fifth floor level and the bottom ones at the third floor. Two of them occur in the opposite exterior walls of court No. 3 and two in each of the wings 3 and 4; the latter being concealed in the partitions between the guest rooms and bathrooms. The openings to the rooms and the windows in the exterior walls as shown by the accompanying section were arranged to come in the open spaces of the trusses, so that but little space was lost, these floors showing only a few rooms less than the typical floor.

The remainder of the framing was accomplished by girders, the largest of which weighs 35 tons. The large space occasioned by the lobby is framed by a series of plate girders spanning 41 feet (the distance between the marble columns), and grouped in pairs 20 inches on center, placed at the second floor level. These in turn are supported by other deep single plate girders spanning the line of columns each side of the lobby and concealed in the deep plaster frieze.

Economy of space, consistent with both good architectural and structural design, was kept constantly in mind, and there is very little waste space in the building caused by the heavy construction, the spaces between girders being nearly all occupied with storage floors or ventilating ducts. The total tonnage of the building is 18,000.



Detail of Trusses over Ballroom, Hotel Pennsylvania, New York City

Post & McCord, Inc., Engineers

McKim, Mead & White, Architects



VIEW OF SEVENTH AVENUE FACADE FROM 3RD STREET, SHOWING PENNSYLVANIA STATION IN FOREGROUND

HOTEL PENNSYLVANIA, NEW YORK CITY

McKIM, MEAD & WHITE, ARCHITECTS







VIEW OF MAIN LOBBY

HOTEL PENNSYLVANIA, NEW YORK CITY
McKIM, MEAD & WHITE, ARCHITECTS





WEST END OF MAIN DINING ROOM
HOTEL PENNSYLVANIA, NEW YORK CITY
McKIM, MEAD & WHITE, ARCHITECTS



WALL FOUNTAIN AT EAST END OF MAIN DINING ROOM
HOTEL PENNSYLVANIA, NEW YORK CITY
McKIM, MEAD & WHITE, ARCHITECTS

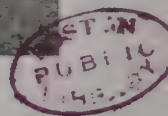




DETAIL OF BALLROOM

HOTEL PENNSYLVANIA, NEW YORK CITY

McKIM, MEAD & WHITE, ARCHITECTS





DETAIL OF GRILL ROOM

HOTEL PENNSYLVANIA, NEW YORK CITY

McKIM, MEAD & WHITE, ARCHITECTS

STON
BATIC
LIBRARY

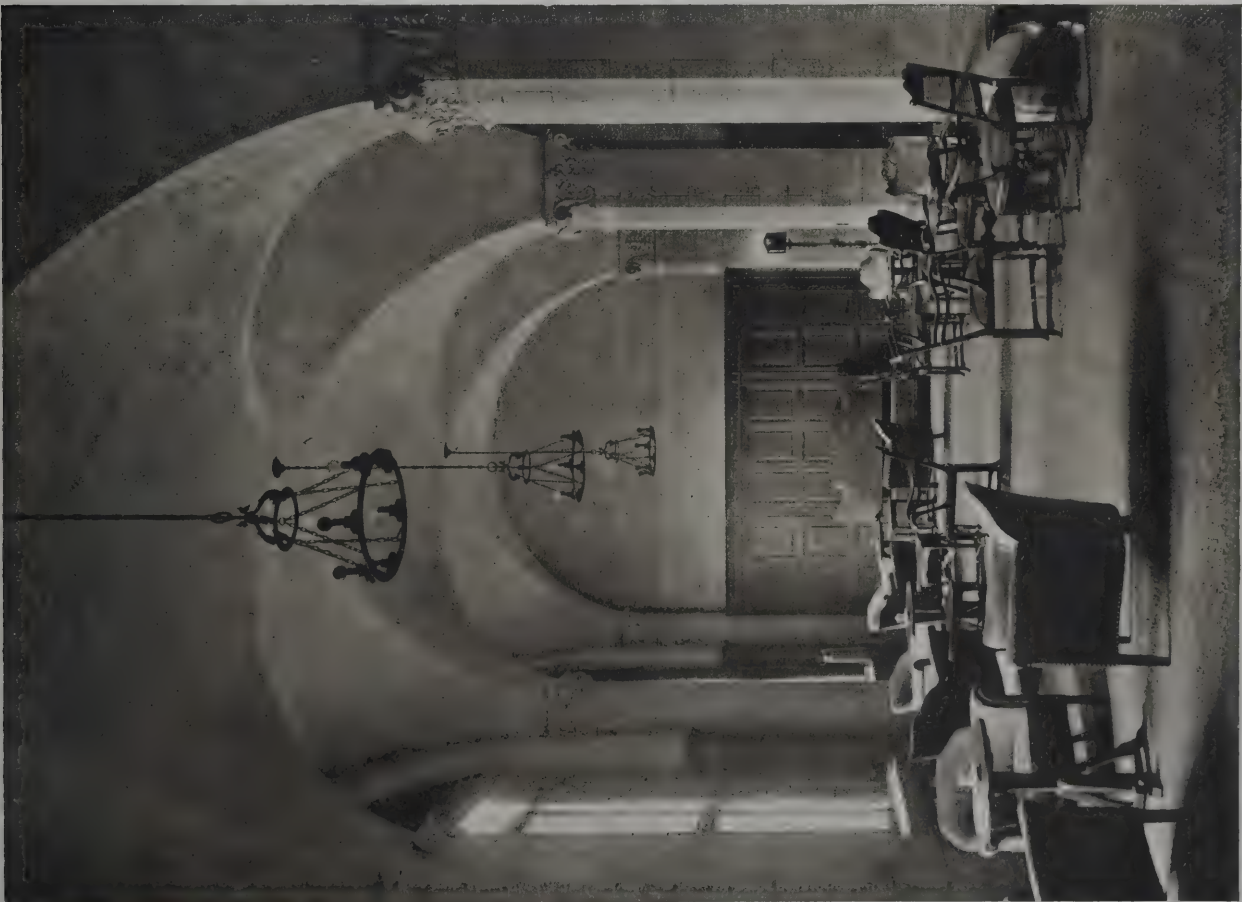


MANTEL IN MEN'S CAFE
HOTEL PENNSYLVANIA, NEW YORK CITY
McKIM, MEAD & WHITE, ARCHITECTS

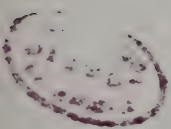


MEN'S CAFE

HOTEL PENNSYLVANIA, NEW YORK CITY
McKIM, MEAD & WHITE, ARCHITECTS



BARROOM





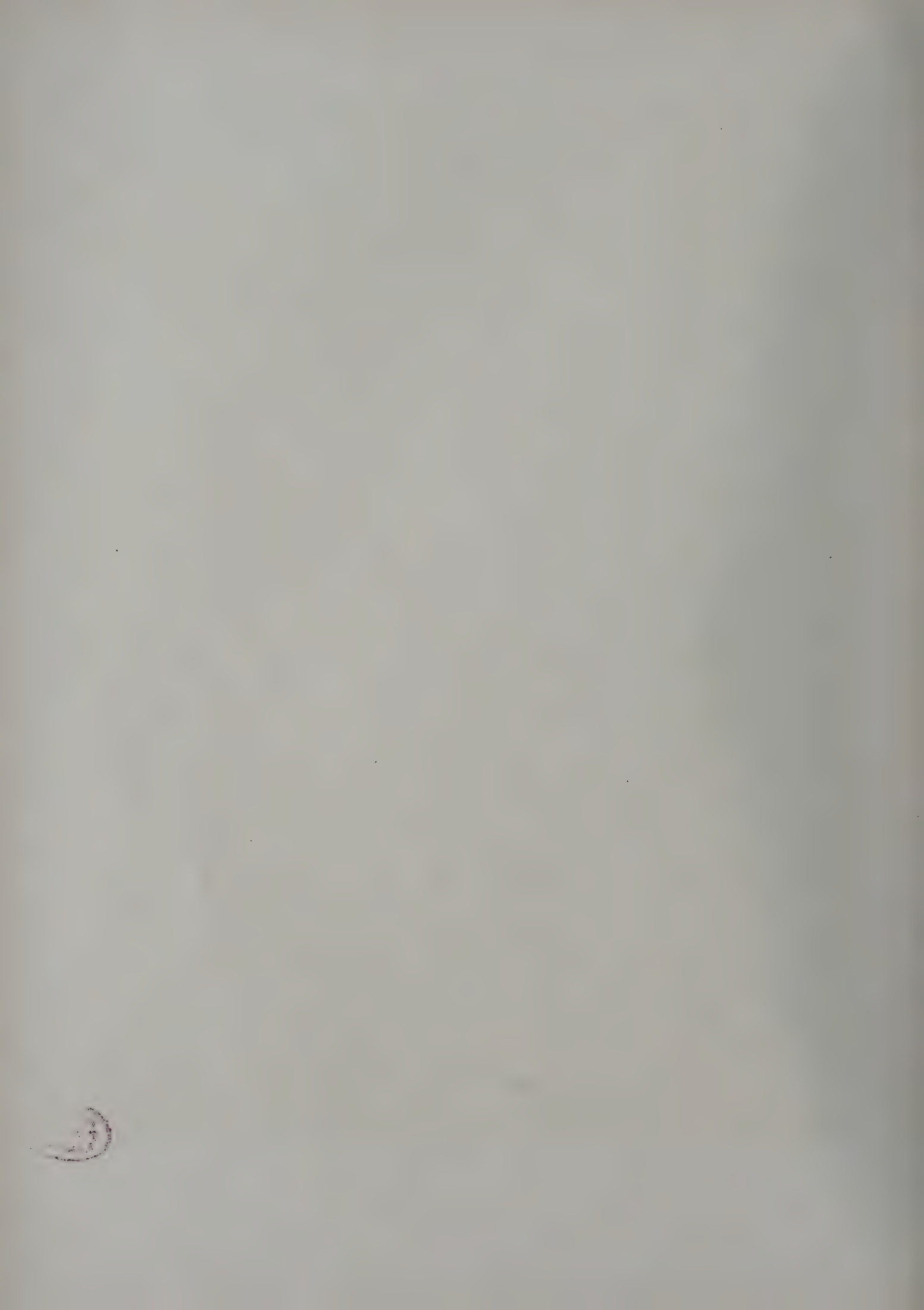
EAST END OF BANQUET ROOM



LIBRARY ON MEZZANINE FLOOR
HOTEL PENNSYLVANIA, NEW YORK CITY
McKIM, MEAD & WHITE, ARCHITECTS



GENERAL VIEW SHOWING CHAPEL FACADE
CARMELITE CONVENT, SANTA CLARA, CALIFORNIA
MAGINNIS & WALSH, ARCHITECTS





SIDE VIEW OF CHAPEL AND CHOIR WINGS
CARMELITE CONVENT, SANTA CLARA, CALIFORNIA
MAGINNIS & WALSH, ARCHITECTS

UCLIC
LIBRARY





VIEW IN COURTYARD LOOKING TOWARD REAR OF CHAPEL
CARMELITE CONVENT, SANTA CLARA, CALIFORNIA
MAGINNIS & WALSH, ARCHITECTS

ST. N.
PUBLIC
LIBRARY





DETAIL OF CHAPEL WINDOW AND CLOISTER ON MAIN FACADE
CARMELETTE CONVENT, SANTA CLARA, CALIFORNIA
MAGINNIS & WALSH, ARCHITECTS

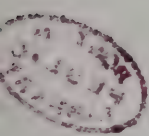




DETAIL OF SANCTUARY OF CHAPEL

CARMELITE CONVENT, SANTA CLARA, CALIFORNIA

MAGINNIS & WALSH, ARCHITECTS





NAVE OF CHAPEL LOOKING TOWARD ENTRANCE
CARMELITE CONVENT, SANTA CLARA, CALIFORNIA
MAGINNIS & WALSH, ARCHITECTS

BOSTON
PUBLIC
LIBRARY

The Design and Decoration of the Public Rooms in Hotel Pennsylvania

By GERALD A. HOLMES

ARCHITECTS in approaching the problem of producing the public rooms of a great metropolitan hotel face a very pleasant task. They have the duty of providing the stage setting for some of the most important social functions in the life of the great city, as well as to impress and welcome the stranger within its gates. The term stage setting is used advisedly, for the audience is large and its opinions not to be despised. The opportunity for leading public taste is great, and the influence of the style of the great hostelrys of recent years has been widely felt. Architects are indeed fortunate when, as in this instance, the owners and operators are men of experience and taste, who hold the highest ambitions toward excellence. McKim, Mead & White, as architects of the Hotel Pennsylvania, were retained by the Pennsylvania Terminal Real Estate Company, a subsidiary of the Pennsylvania Railroad Company, under the direct personal direction of Mr. Thomas W. Hulme, Real Estate Agent. Mr. Ellsworth M. Statler, President of the Hotels Statler Company, who are the lessees and operators, was in constant consultation with Mr. Hulme and the architects, and his opinions and ideas were of the utmost importance as a guide to the solution of the various problems.

The endeavor has been made to express in the public rooms of Hotel Pennsylvania a breadth and dignity consistent with the magnitude and importance of the operation, without sacrificing the intimate charm and good taste which the American public is so rapidly learning to demand in its own homes. While it is necessary to display to the guests of a great hotel a certain variety of treatment in the public rooms, it is important to harmonize the various effects so as not to produce a state of mental and spiritual indigestion. In Hotel Pennsylvania, taste and scale of detail and color have been most carefully studied with this idea of unity in mind. The classic architecture of the Italian Renaissance and its direct English derivatives have served as inspiration for the treatment of all these rooms. There has been a studious avoidance of the rathskeller type and the depressing magnificence of the French Eighteenth Century. The illustrations will tell the story that spacious, well proportioned and livable rooms have been produced.

To arrive at the result predicated at the beginning of the last paragraph, it is evident that the part color has to play is a vital one. The selection and combination of materials for decoration, lighting, furniture and draperies are as important as the proportion and

details of the design. The architects associated with themselves the eminent artist, Mr. Jules Guerin, to assist in the establishment and execution of a color scheme that should be distinguished and harmonious. By the medium of consultations between the architects, Mr. Guerin, and the decorators, who acted for the Hotels Statler Company by whom the furnishings were installed, a relation was assured between the architecture and the style and color of the furniture and draperies.

In regard to the materials that entered into the construction of the building, a few words of explanation may be appropriate. The great size of the spaces and the conditions of the markets in labor and materials due to war time, added to the fact that such a building must represent a strictly business investment, presented the chief difficulties to the architects in their work. As we all know, marble, cut stone, bronze, cabinet work and all carvings and wrought work come under the class of luxuries in these days. In Hotel Pennsylvania all these items were reduced to an absolute minimum and extensive use made of terra cotta, tiles, terrazzo, cast iron, artificial marble and stone, and the skill of the modeller and decorative painter were depended upon to a great degree for particular spots of interest.

In the main lobby and the various entrance halls terrazzo was chosen for the floors and for the treads and risers of stairs. The use of borders and dividing lines of mosaic and the laying of the terrazzo in squares and in the patterns of antique marble floors have served to redeem this material from its usual uninteresting qualities. For the terrazzo, Botticino marble aggregates of two sizes, light pink Tennessee and dark cedar Tennessee give four soft colors; the mosaics consist of alternate three-fourths inch squares of pink Tennessee and black marble. The main lobby and its branches, including the tea room and the promenades around it, are treated with a base one foot high of Hauteville marble. The main office and various other counters are of Botticino marble above the base. All the walls up to the ceiling under the mezzanine gallery and the columns and corner piers of the central colonnade are of artificial marble, a material based on cement and marble dust, put in place either plastic or precast as the case required, and afterward worked to a polish by rubbing in the same way that real marble is finished. The character of the Botticino is imitated to a remarkable degree. By the use of the high central colonnade with mezzanine gallery and the metal and glass ceiling above, the effect of an open court is produced, which is designed to relieve the

feeling of oppression so often produced upon entering the ground floor of a solid mass of high building. A golden light floods the space from reflector units above the glass, and is supplemented by warmer and brighter colors in the lighting standards. The main color note of the rugs and upholstery on the lobby floor is red.

The tea room, while reminiscent of the English eighteenth century styles, bears in its design and ornament a closer relation to Italian models. The openings are trimmed with painted woodwork, the walls, cornice and ceiling are of plaster. The color scheme is ivory and warm gray. A Chinese pattern rug in browns and blues is used, and the furniture is in blue and old ivory lacquer with Chinese suggestion in its lines. The lights are distinctly warmer in color

and lower in power than in the lobby, helping to close in and feature the room from the surrounding spaces.

The great size of the main dining room, sixty by one hundred forty-two feet, creates of itself a fine impression. The composition, with plain walls of artificial stone ashlar and a richly decorated beamed ceiling, is Italian. The relative lowness of the ceiling, twenty-two feet, and its enormous span presented a serious coloring problem. By the use of a surprisingly light general tone value and a careful interweaving of soft colors the apparent height of the room is increased. The plaster beamed ceiling is treated as old weathered wood, gray brown in tone, with modelled and stenciled ornament painted in reds, blues, yellows and greens. The spaces between the beams are colored a dull blue. In this room the problem of a serviceable

material for base course and window and door trims was solved by the use of terra cotta of a slightly darker color than the walls, with a faience glaze. The fountain and niche are also of terra cotta, while the columns are of artificial marble. The lighting fixtures of polychrome metal with parchment shades were depended upon to give interest to the plain wall surfaces. The draperies are of a blue and yellow striped silk. The chairs are a reproduction of an old Venetian walnut piece, the upholstery of blue figured damask. The general color scheme of the room is reflected in the tapestry on the west wall, which is a fine Flemish piece in which blues, greens, dull yellows and browns predominate. The carpet has a Chinese pattern with blue and rose figures on a dull yellow ground. The room is floored in a dark gray-green terrazzo with a central portion in wood strips for dancing.

The grill room in the basement is designed to give the feeling of the grotto gardens of an Italian villa. The floor is of light red tiles. Terra cotta was again resorted to for the wain-



View of Ballroom Foyer, Hotel Pennsylvania

scot and for the corners of wall pilasters and free standing piers. The color is a light gray buff with dull glaze. The piers and columns and wall arcades are executed in sgraffito in the typical dull earth-red ground with ornament in light buff. A lighter red than the sgraffito is used in the stucco wall panels. A note of gay blue-green is introduced in the sash of the screens and mirrored windows and on the iron railing. The plaster ceiling is simply treated in tones of old ivory, with a simple pattern of orange leaves and fruit in the central portion. The lighting fixtures are covered with orange colored silk, giving a warm and pleasing light.

The entertaining suite on the ballroom floor consists of an elevator lobby and corridor in artificial stone, a grand foyer and two parlors leading to the ballroom on the south side of the building; and a smaller foyer and banquet room and a suite of three private dining rooms on the north.

The grand foyer and parlors are Italian in feeling, with simply treated walls of artificial stone and sand finish plaster, and rich beamed and coffered ceilings in which extensive use of color has been made, afterward glazed and antiqued to produce a soft effect. In the ballroom the decorative interest is centered in the vaulted ceiling, in which a good deal of color has been used in picking out the modelled ornament, and a unifying wash of a warm yet delicate rosy color applied to the whole. As to materials, the ballroom has a herringbone oak strip dance floor, with terrazzo under the galleries. The walls, piers and ceiling are of plaster with painted wood corners and trim and composition ornament. In the chandeliers, silk has been used to great advantage in combination with crystal.

The banquet room is paneled to the ceiling in white oak with a fumed and waxed finish kept rather light



View of Parlor on Ballroom Floor, Hotel Pennsylvania

and gray in color. The draperies and carpets are red. In the private dining rooms, the feeling of paneled Georgian rooms is obtained by applying wood pilasters, trim and panel moulds to plaster walls. The walls are painted a light green, and the draperies are printed linens in which green and rose figure on a light ground.

On the first floor, at either side of the main entrance are the café and the bar. The former is a Philadelphia Colonial room in style, reminding the visitor of the origin and antecedents of the owners. In scale, it compares closely with the work at Independence Hall, although for practical reasons the material chosen for the paneling is a natural finished chestnut, gray-brown in color, producing an effect more often met with in the Colonial rooms of the south than in this section of the country. An open

grill is framed with hand-painted tiles, designed and made especially for the place. The draperies are of an English printed linen with gay-colored flower pattern on light ground. The floor and base are of the Welsh heatherbrown quarry tiles. The lighting fixtures of pewter and brass are in harmony with the style.

The barroom has a very interesting floor of small mosaic tiles in varying shades of red, with faience inserts. There is a tile base, oak paneled wainscot, and artificial travertine walls and piers. The vaulted ceiling is of sand-finished plaster. The leaded glass windows are draped with a rich red and blue stuff of Italian design and with valances embroidered with Italian ornament.

The library is a study in the Jacobean style. The oak paneling has been made quite a dark brown in color to afford a restful contrast to the adjacent lobby galleries. The draperies are English embroidered linens. The floor of this room, as well as of all spaces which could be considered as permanently carpeted, is of cement with carpet nailing strips against the base.

A cardinal policy with the operators is their

desire for flexibility in regard to use, furnishing, and decoration of spaces. This desire has worked in very well with the ideas of the owners and architects as to simplicity of architectural composition and detail.

For the decoration of the typical bedrooms, wood mouldings were applied to the plaster walls to form panels, the whole being painted in lead and oil colors. Three slightly different color schemes, all quite light in tone, were adopted, and draperies and upholstery studied for each. All ceilings are furred and have simple plaster cornices. An entire floor is treated with one color scheme, with the exception of a few parlors and special suites for which particular treatment was worked out. A combination buck, frame and two-inch trim of stamped steel is used for all bedroom door openings, and a steel base five inches high in the rooms. The corridors have a base and floor border of polished white Carrara glass. Steel double hung windows are used throughout and all window trim is eliminated, the plaster being returned against the box at jambs and head, while a metal sill with nosing is part of the window construction.



Suite of Private Dining Rooms, Hotel Pennsylvania

McKim, Mead & White, Architects

Buildings for the Modern Farm

PART II. PLANNING OF MINOR BUILDINGS

Concluding Paper

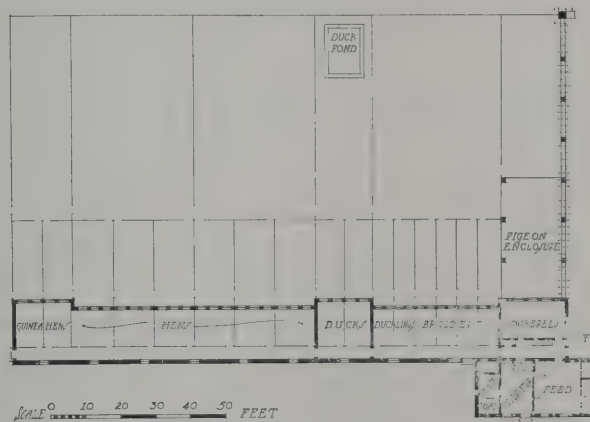
By ELISHA HARRIS JANES

UNTIL quite recently chickens were housed in almost any type of building and placed in any out-of-sight place as long as they had some sort of scratching space, if only the neighbor's garden. They are now treated to the latest sanitary housing, even to fireproof houses. Often they are featured in the farm group as in the Warburg buildings at White Plains and others illustrated in the previous issue. There are two general types which have been successfully used, each having its advocates. The first one, a semi-monitor type, throws the sunlight farther back into the building, thus keeping the building much sweeter and more sanitary; its objections are expense and the inconvenience of the low head room in the front portion. The second is the more common type and is used in the James farm group at Newport, R. I. One section illustrated is of the chicken houses on the farm of Jacob Schiff, Esq., at Redbank, N. J., and shows the brooder portion, which

is of special interest in the arrangement of heating the brooder by steam. In either type, care must be taken not to have the interior so large that the chickens cannot warm themselves. Chickens have great body warmth, so much so that it is practical to leave the whole front open if the building is thoroughly dry and they can get out of a draught. Some advise a few coils to take off the chill in severe weather, but regulation of the heat is difficult and apt to be disastrous to the fowl.

Nests should be accessible but darkened, and they are generally placed under the dropping board.

While a separate passage is not necessary, it is a great convenience, especially on the private farm. It should be arranged so that the dropping board may be cleaned and the nests reached without going into the pens. The front of the building is best arranged with part glass and part muslin. The latter permits the foul air to escape, yet retains the warmth and allows



Floor Plan of Chicken Houses Below



Chicken Houses on the Estate of Felix M. Warburg, White Plains, N. Y.
Elisha Harris Janes, Architect

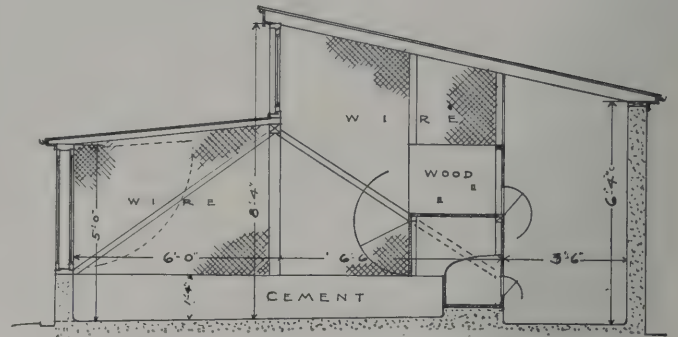
the light to enter. Some are arranged with double doors of glass and muslin, the glass to be closed on severe nights. When the glass only is used, it is best to hinge the sash at the top and have a wire screen door hinged at the sides. A curtain hung in front of the roosts assists in keeping the fowl warm. The building also should be divided into units with solid partitions to prevent draughts. The outside runs should be rat-proof: one method of effecting which is illustrated. It is also well to divide the runs so that the chickens may be confined to a small or large one.

In the chicken house on the James farm an interesting variation occurs because of the contour of the land. The building was placed in the middle of the clearing and runs built front and rear of it. They are of different levels and connected by sloping tunnels under the passage. In this plan, the killing, testing, etc., are done in the cellar, and the dove cote is located overhead.

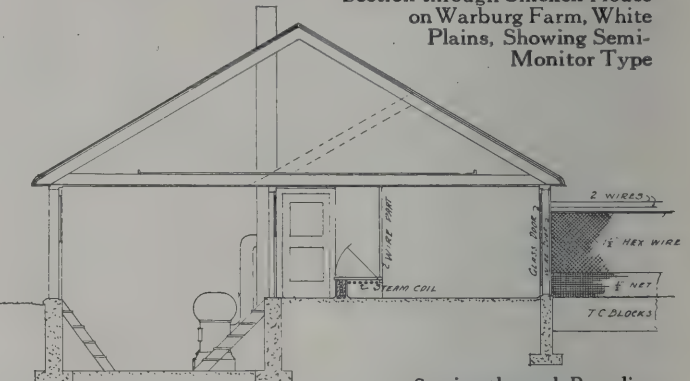
Housing for ducks is somewhat similar to that for chickens. The ducklings are kept warm longer than the chicks and after being transferred to the cool brooder they are allowed to run free by water. They stay out of doors much more than the chickens and on some farms are kept out all the time except through the winter months. The floors of the house are preferably of sand, and part bedded in straw or salt hay.

Turkeys thrive better in small colony houses and at a distance from the chickens, as some diseases, slight in chickens, are fatal in turkeys. They also need much larger runs than the chickens.

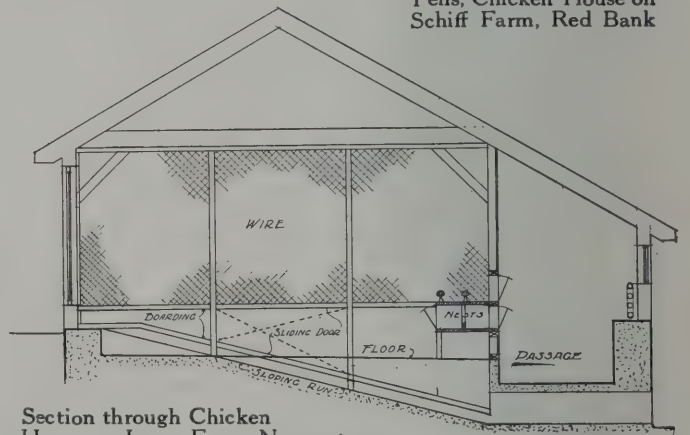
Sheep are becoming more popular as part of the live stock on small farms, and some special features are desirable in the building that accommodates them. They are valuable not only for food and wool, but because they are the best land fertilizers and most useful in keeping hills closely cropped of grass. Their principal enemy is the dog, and protection from him is very necessary.



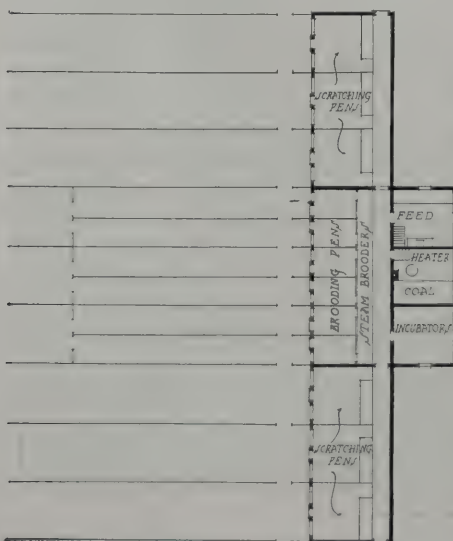
Section through Chicken House on Warburg Farm, White Plains, Showing Semi-Monitor Type



Section through Brooding Pens, Chicken House on Schiff Farm, Red Bank



Section through Chicken House on James Farm, Newport, Showing Sloping Run connecting Front and Rear Yards



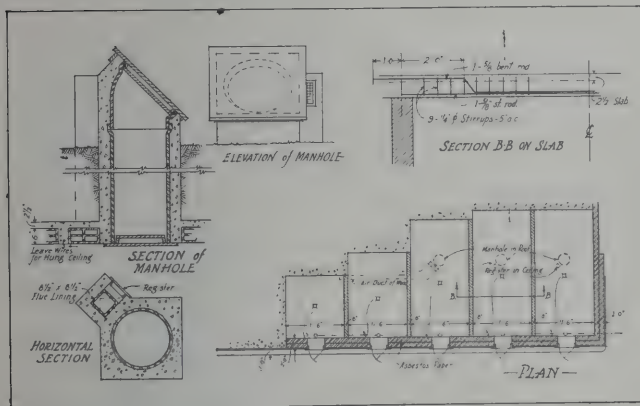
Floor Plan and Exterior View, Chicken Houses, Estate of Jacob H. Schiff, Esq., Red Bank, N. J.
Elisha Harris Jones, Architect



Chicken House, Estate of Arthur Curtiss James, Newport, R. I.



Floor Plan of Chicken House Above
Grosvenor Atterbury, Architect



Details of Root Cellars on Estate of J. C. Baldwin, Jr.
Mt. Kisco, New York
Benjamin W. Morris, Architect

These are built into a bank and extend as far as a rock formation permits. Outside walls are double hollow tile



Root Cellar, Estate of Felix M. Warburg
Elisha Harris Janes, Architect

The type of building popular with sheep breeders is a large square structure housing from 300 to 1000 animals, each of the four sides having windows and the upper part devoted to storage of hay and feed. For the private owner a different type is advisable, one giving a greater proportion of sunlight. Sheep need ventilation perhaps more than any other of the domestic animals, and when their heavy coat of wool is considered the reason is obvious.

The fold had best be arranged so that the wall toward the prevailing winter storms may be closed through the winter but opened in the summer to get a draught. The south side could even be left open, save for slats to keep the sheep in or out. If it is closed there should be plenty of windows and wide doors, as sheep in passing through always crowd each other. The doors may be arranged as Dutch doors or slat gates or both. The best floor for the fold is of earth, well drained and built up sufficiently to insure dryness at all times. Around the feeding and water troughs there should be concrete pitched to a drain. Sheep need plenty of clean water, running if possible. The fold should be divided, as ewes about to lamb should be fed carefully, and the yearling pregnant ewes, the ewe lamb for breeding and the lambs for market may need to be treated somewhat differently. The feeding is from long racks, preferably of a kind allowing them to put their heads between wide slats. A "creep" for the young lambs to reach tempting food is useful.

The lambing pens should be about four by five feet and may be portable. Heat is needed for the lambing ewes as the young lambs are very tender and often need nursing; for this reason also, the shepherd's room should be close by. The yard should be to the south and here again outside troughs and feed floors are a great convenience. To keep the animals in best condition the herd should be dipped annually, at least,



An Old Virginia Ice House
Showing Interesting Stunted Silo Type



VIEW FROM DRIVE SHOWING COW BARNS



VIEW FROM NORTHWEST SHOWING DAIRY AND PASSAGE TO COW BARN
 FARM BUILDINGS OF W. B. OSGOOD FIELD, ESQ., LENOX, MASS.
 JOHN C. GREENLEAF, ARCHITECT

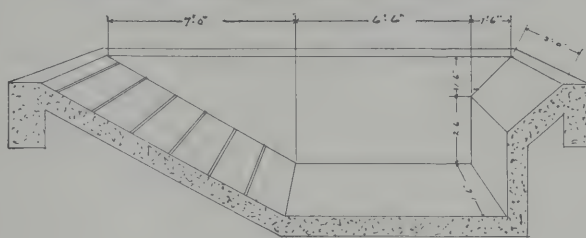
and any new animals as soon as they are received. A dipping vat similar to the one shown in the diagram is best for this, also for washing the sheep before shearing. As roots constitute a valuable part of their food, a root cellar is almost a necessity.

Buildings for the housing of pigs have seen greater changes than other farm buildings. We all remember the pigsty which caused us to wonder how an animal could live under such filth and odors, wallow in the swill of the household poured into his trough and yet

produce such fine food. With the slogan "a pig a man" this has greatly changed, and with good care the resulting number of animals is about doubled. They are now housed in sanitary buildings, often of cement and arranged to be flushed out. Pigs need more care and protection from heat and cold than any of the other animals, also sanitation and light; great care must, therefore, be taken that the maximum quantity of sun reaches the interior of their houses to purify them. Some heat should be provided for severe weather as the animal has little natural covering to protect him. The hog house should be on a well drained site. The beds should be of straw on a wood floor with a rail around the pen eight inches from the wall and eight inches high to prevent the sow from lying on and smothering the young pigs. The inside pens should connect with the outside ones. The latter may be divided or combined and arranged with some shade. A canvas curtain between the outer and inner retains the heat in winter. A variation to the plan of the building at Cold Spring, N. Y., is to have the feeding troughs in the pig yard. As most of the odors come from the food, this has the advantage of keeping them out of the building. Around the trough may be arranged a concrete feeding floor. Contrary to belief, a pig likes to wallow in water and if he cannot, will do so in mud. It is therefore well to arrange a wallow pit. It consists of a shallow pond about twelve feet by eight feet and eighteen inches deep, sloping at one end or it may be arranged by having the sides of the pen eight inches high and provided with a drain. A dipping vat is also necessary if there are many animals. It consists of a long, narrow concrete



Typical Building for Large Herds of Sheep

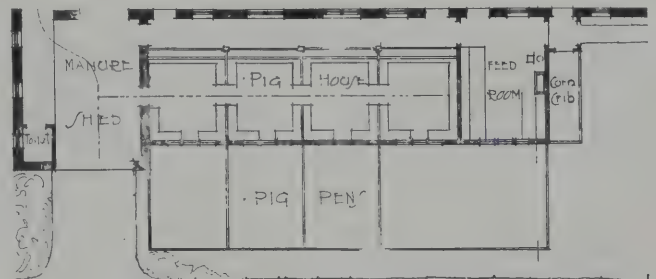


Detail of Dipping Vat for Sheep

bath, waterproofed, with sloping ends, the one the animals walk into being of a sudden pitch and the other end a gradual slope with cleats. There should be a drain and an enclosure at each end. Some experts advise having the manure pit near if not adjoining the runs, as the pigs enjoy stirring around in it and their doing so is good for the manure.

The care and disposal of manure is always a vexing problem, and each farmer has his idea as to what should or should not be done with it and its liquid.

Many superintendents will not take the trouble to use the fluid collected and insist on its being disposed of with the sewage, thus causing another problem. It is too valuable to be thrown away and should be stored, as it cannot be distributed at all times on the ground. The location of the manure pit depends on whether you have pigs and wish them to furrow in



Floor Plan of Hog House Below



Piggery, Farm of Messrs. L. and R. W. Johnson, Croyden, Pa.

Duhring, Okie & Ziegler, Architects

the manure. The simplest method is to spread it over a concrete basin with a drain leading to a cess-pool or container. The rains will keep it moist, although there is the danger that it will get either too wet or dry. A better way is to have an open shed with the litter trolley running to it. The liquid in either case may be drained to a sump pit or absorbed by the use of sawdust and used in that form.

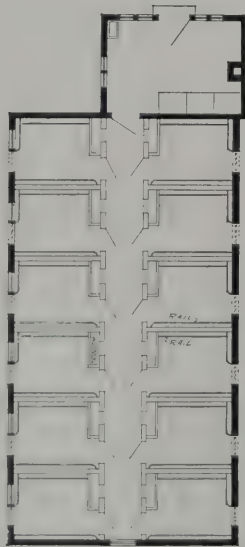
The root cellar may be either under one of the buildings or, as is more popular, built into a bank. The walls should be waterproofed and ventilation arranged to prevent any dampness or condensation. A dirt floor is preferable but it must be well drained. After the walls are built, covering them with earth and sod helps to keep an even temperature. If a free standing building is used the walls and ceiling should be insulated with cork and air spaces. The racks and shelves depend on what vegetables are stored.

Similar buildings are used for housing bees during the winter months. It is one of the best methods of maintaining the even temperature which is necessary for the bees; but special care should be taken that the building is well drained and kept dry.

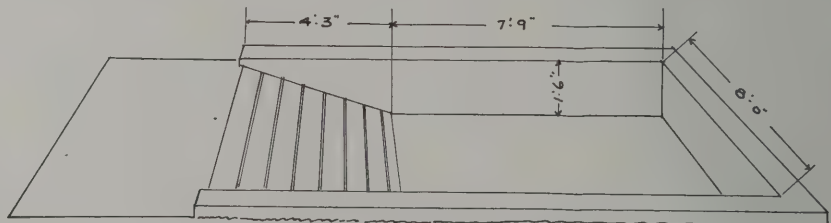
Few attempts are ever made to make the ice house attractive; the advice is generally to hide it in the woods. A little care and thought can make even this attractive. The early forms of small ice houses were built all or in part below ground. With our effective methods of insulation, this is no longer necessary, so

that while it is limited somewhat in shape, it may be made sightly. Some have been built in the form of a stunted silo; others are combined with the milk house or arranged with cold storage rooms. This latter method is very valuable as the necessity of cold storage is becoming more and more apparent. This method is, however, more wasteful of ice, as there is no way of saving the supply when only a small amount of refrigeration is needed. The few important points are to have some ventilation provided under the roof and above the ice, otherwise the moisture will be retained and the ice rot. Too much care cannot be used in the insulation of the walls. Adequate drainage should be provided, with a trapped drain protected from clogging. The packing of the ice is a very important factor; there should be about twelve inches of sawdust on the outside of the ice and on top of the last layer, but nothing between the blocks. In capacity fifty cubic feet of storage space is required for a ton of ice; five tons are enough for household use and two thousand pounds of ice per cow is needed for cooling the milk and cream.

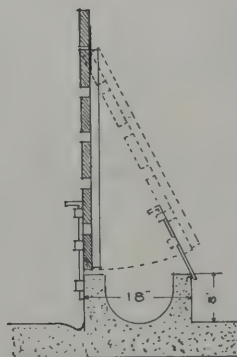
The list published in the previous number shows many other small buildings but space prevents each one being taken up in detail. But from the illustrations and descriptions, the architect who has not worked on farm buildings will readily see what a field there is offered him to improve the countryside and what interesting problems arise.



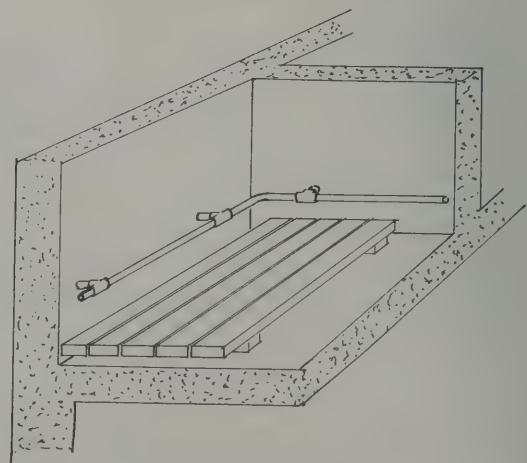
Plan and Section, Piggery
Cold Spring, N. Y.
Lewis Colt Albro, Architect



Detail of Concrete Hog Wallow



Detail of Hog Trough



Hog Pen showing rail for protection of
small Pigs from Sow

Details by Elisha Harris Janes, Architect

The Carmelite Convent, Santa Clara, California

MAGINNIS & WALSH, ARCHITECTS

TO express fittingly in terms of architecture the spirit of the convent, is to engage the most picturesque resources of design. A community of women, whose lives are wholly consecrated to religion, represents a domesticity which calls for unique and delicate expression, with implications both of the church and of the home. We find very many examples of the artistic romance of convent architecture in Europe, but the typical convent of America has little or nothing of this character. It is, on the contrary, singularly and perversely, a mere cube of masonry whose phlegmatic bulk negatives at once the idea of spirituality and of femininity, and demonstrates that this particular problem has not yet received from the architect the thoughtful study it deserves.

The new monastery of the Carmelites at Santa Clara, California, is the result of a conscious effort to find a fitting architectural solution. The architects were primarily fortunate in the scene of their effort, and coupled with the traditions of the Carmelite order, associated as they intimately are with the Renaissance of Spain, the work essayed in the spirit of that period

held implications of singular promise. There has been no attempt, however, to adhere literally to any phase of this tradition, rather has it been the aim to interpret the dual character of the convent in the light of its own traditions and the setting in which it is located.

The obvious importance of the chapel, as the vital center of the community, had its own suggestion for the architects. A note of responsible Renaissance character has been introduced here which is the only portion of the Carmelite institution where architectural ornamentation is permitted. The right placing of this chapel is indeed a determining principle in the design, because it must serve at once both the Community and a considerable public, which is attracted by the spiritual ideals of the order. Something of a hint may be given here that the Carmelites are a cloistered order of an unusual austerity of habit. The hours not devoted to domestic duty are given to prayer, contemplation and spiritual exercise.

The Community have a personal communication with the public by voice only, the sisters not being visible. This is accomplished by what is known as the "speak-room," which consists of two apartments



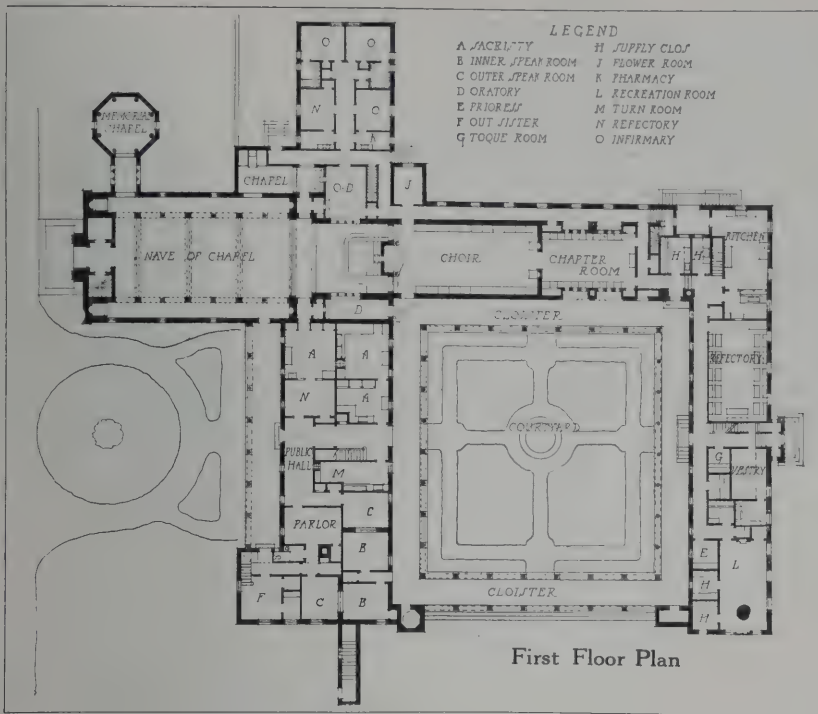
View of Nuns' Choir, Looking Toward Altar



VIEW SHOWING CLOISTER CLOSING QUADRANGLE



VIEW LOOKING TOWARD INFIRMARY WING
CARMELITE CONVENT, SANTA CLARA, CALIFORNIA
MAGINNIS & WALSH, ARCHITECTS



First Floor Plan

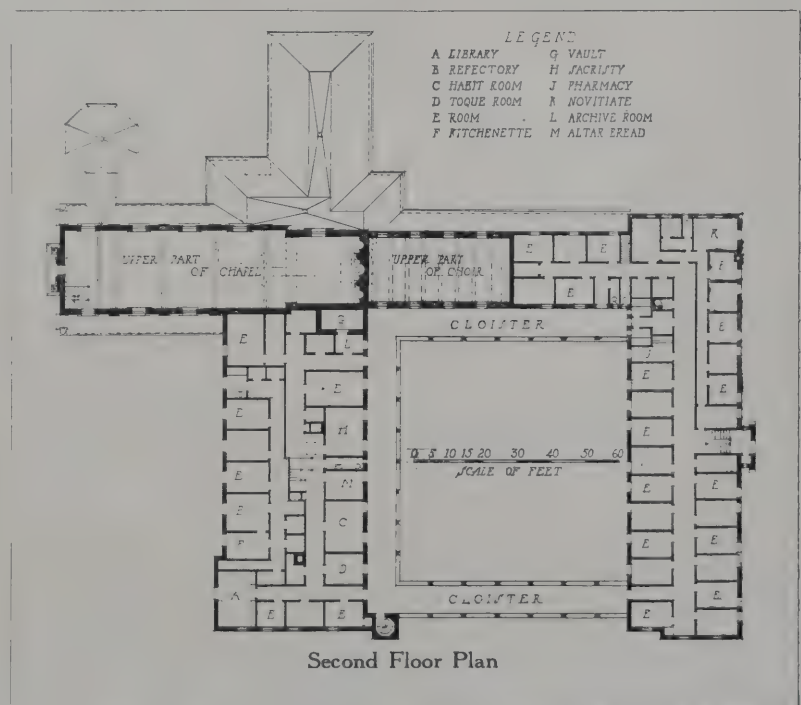
(an outer and an inner speak-room) separated by a fixed grille of metal, veiled on the inner side. The "outer speak-rooms" are directly accessible from the public lobby of the convent. In this lobby, conspicuously placed, is the typical Carmelite institution, known as the "turn." A symbol of the dependence of Carmel on the charity of the world (a dependence which is inflexibly of the rule) the "turn" is a revolving cylinder of wood, furnished with shelves, on which alms, in food or money, may be conveyed to the Community. Other than as has been stated, the organism of the Carmelite Convent is not affected by the public relation in any phase of its existence.

In the general characteristics of the building, as they disclose themselves externally, there is indicated clearly the architects' intention to achieve a spreading composition and a general picturesqueness of effect. The chapel dominates the whole architectural composition and is approached by a straight avenue which is bounded by one of the claustral walls. This interesting accent has been made possible because of the salient placing of the chapel, standing, as it does, almost free of the quadrangular plan. By way of interesting reminiscence, certain items of the external design, such as the unique belfry, are reproduced from the noted Carmelite Convent at Avila, Spain. The external effect in point of color depends on the highly interesting tile roofs, of beautiful and varied tones, which combine to give an effect of grayish violet at some dis-

tance. The walls are a very delicate shade of pink, the trimmings of a light buff shade of terra cotta thinly enameled,—colors that provide an ideal foil to the brilliant green foliage and the blue skies of California.

The chapel, which is approached through a small vestibule, is eighty-seven feet long and thirty-five feet wide, including the side aisles. A series of alternating piers and columns support the lofty clerestory. The roof construction is frankly expressed in interesting truss forms of wood. The floor of the chapel is paved with brick, laid in herring-bone fashion. The sanctuary is deep set and is distinguished by a great gilded reredos, incorporated in the design of which is a Nativity group, flanked by standing figures of Isaiah and St. John the Baptist in niches. The two great columns which form an important

feature of the reredos were copied from small antique examples in the possession of Senator Phelan at Montalvo. The altar proper is rendered in Botticino marble with inlays of gilded carving; the floor of the Sanctuary is paved with marble tiles. Here again the color has been most carefully studied for a rich, though quiet and reserved effect. The walls are cream plaster, enriched with light buff terra cotta; the pavement is dull red, and the open wood ceiling slightly mellowed with stain. The reredos is luminous with a soft metallic luster which is the culminating color value in a progressive concentration



Second Floor Plan



View of the Refectory

of richness leading in quiet gradations to the altar.

Connected with the main chapel, towards the east, is a small octagonal memorial chapel, sixteen feet in diameter, erected to the foundress. This is finished in Botticino marble, with a column at each of the angles supporting a low dome. On the axis facing the large chapel is the memorial altar of Siena and black Belgian marble. On the pavement, in front of this, is set a large memorial stone with bronze inlaid inscription.

On the east side of the main chapel and accessible from the bay nearest the sanctuary, is the Lady Chapel. This has been planned so that its altar may be approached by the priest without issuing from the main sanctuary, proper provision having been made at the same time for communicating oratories. Prominently placed in the Lady Chapel is a recessed confessional. The chapel is ceiled by a semicircular vault, Botticino marble lining the walls up to the spring of the arch.

The plan of the convent, as it is developed from the public portion of the institution, is comparatively intricate. In this connection it should be stated that the authorship of the plan is attributable very largely to the Community, and the architects have been impressed by the singular skill shown in its development. The convent is arranged to frame a patio, which is approximately eighty-nine feet square, in the center of which is placed a fountain of terra cotta, surmounted by a little figure of the Infant Saviour. The four sides of the patio are defined by colonnades which frame the paved walks and cloister garden, the planting of which, however, has not yet progressed to the point necessary for its proper effect. At one end of the cloister closing the quadrangle is provided a tourelle with winding stairs to the look-out command-

ing a view of the distant hills.

The wing to the north is devoted to the public lobby, parlor, and inner and outer speak-rooms, and at the point of junction with the chapel, to the sacristies. Opposite this, to the south and across the patio, is the domestic wing. At its east end this is connected with the rear of the chapel by the wing which is devoted to the Choir and Chapter Room, related laterally to the axis of the main chapel. On the east side is a short pavilion given over to the Infirmary; composed of two wards, a refectory and a room for the infirmarian.

The Choir is a paved room of long, interesting proportions, and in its quiet color scheme and dignity in the use of materials which

approach austerity, it is a particularly fine example of architectural expression. The semicircular vault is of white plaster pierced by high windows that effectively light the apartment. The walls are lined with light brick of warm buff tones, harmonizing with the pavement of dull red brick. The choir benches are placed longitudinally, facing each other in the customary way. The wood of these benches and of the handsome altar set against the south wall, is gum in its rich natural color. In front of the benches is a strip of brown cork tile. The grilles on either side of the altar serve to bring the Community into relation with the public service in the chapel. In a panel overhead is set a sculpture composition in very slight relief of St. John of the Cross and St. Theresa.

The Chapter Room, which opens by means of double doors from the Choir, is furnished with an altar for relics, placed against the south wall and surmounted by a large crucifix. Seats are arranged along the wall as in the Choir.

As an architectural composition the building possesses singular charm. It is carried out to the smallest detail in a manner eminently in keeping with its use and in harmony with the traditions of the architectural style which the old Mission Fathers developed with such good grace to fit in with the California landscape. It is, in its simple and gracious character, like one of those charming bits of architecture which many centuries of culture have generously bestowed on European soil, but which are too rarely produced on this side of the Atlantic because we do not devote the same degree of care in interpreting the spirit of a building's use in its architectural forms. The Carmelite Convent is especially noteworthy for this quality and it should exert a wide influence on future buildings of its type.



Model for Norfolk County Tuberculosis Hospital, Braintree, Mass.

Harold Field Kellogg, Architect

The Model for Architectural Representation

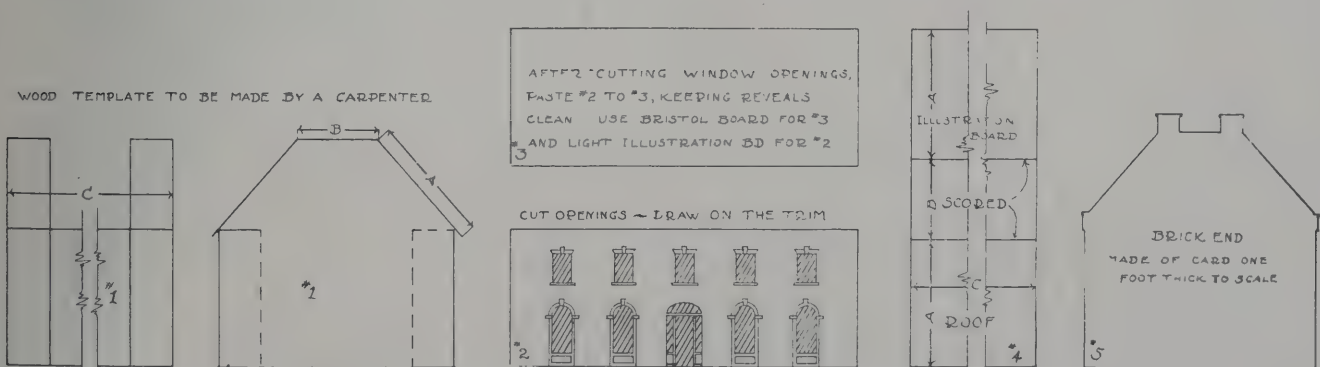
By EDWIN S. PARKER

IT would be with a sense of acute surprise and disbelief if we were to discover that some friend, apparently our equal in every respect, should prove to be unable to read or write. We would find it difficult to believe that a process so simple and commonplace should be to him a mystery and a closed book. A gulf would be opened between us, but we could easily restore understanding by resorting to intercourse entirely by speech. We would talk, not write to him, and there would be only momentary estrangement.

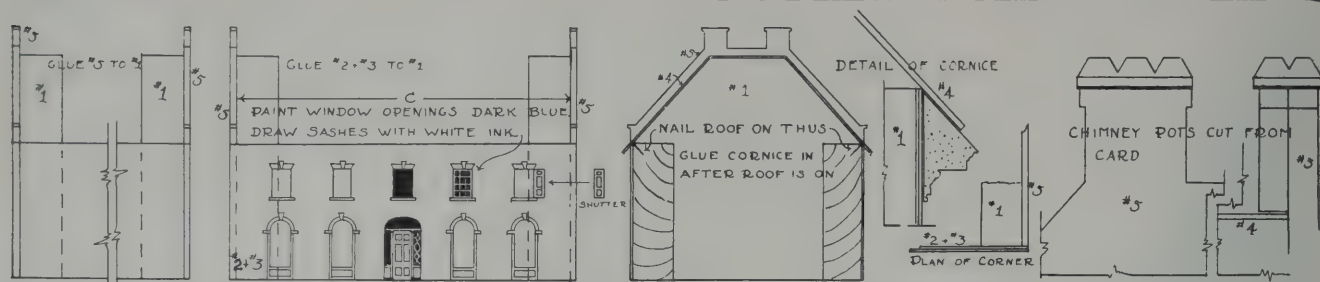
It is with an equal sense of surprise and disbelief that the architect discovers that a drawing which to him obviously represents an object in three dimensions, is to his client merely a series of lines, representing nothing. It is difficult for him to believe that so simple a representation should be unintelligible to another, and there is opened between them a gulf, which, unlike the other, cannot be bridged in any simple manner, and understanding, so necessary to business intercourse, can only be attained by round-about methods. The client desires, most naturally, to see what he is getting, and the drawings convey in many cases practically no idea of an actual building.

A perspective sketch does better, but this is unsatisfactory, for it gives only one point of view and is still merely a picture, embellished more or less with fictitious landscape and surroundings which give it the appearance of an artistic unreality, rather than a concrete representation of what the building is to be.

There is a need, then, to find some means of giving directly to the client a concrete idea of his future building which shall be truth-telling, not dependent upon cleverness of line and color to give an effect of reality; and which shall not deceive the client by beauties which are entirely foreign to the architectural features: it must, in short, be an honest and obvious representation of the building as it is actually to be built. And the model best fulfills these requirements. It is, first of all, concrete, is in three dimensions, can be viewed from all angles and distances, and can be handled. It is honest, in that it can be seen for what it is, and is not falsely enhanced by a fairyland of landscape and sky. The reduction in scale, practically the same in both cases, is as easily read off from the model as from the perspective; and the construction is so simple that any draftsman with an ordinary building sense can easily and successfully



Preliminary Stages in Model Making with Cut Facades and Blocking



Rendered Front and Treatment of Main Details

make it. For these reasons the model is the ideal means of architectural representation.

Besides these points there is another — defects of design which do not show in a drawing or perspective stand out glaringly in a model, and by assembling and changing the parts of a model the design itself can be studied to great advantage. Dormers can be made to size, moved about on the roof till their best location is found, and then glued in place. Elevations can be changed at will, and roofs can be tried on as one would hats in a shop.

This aspect of the value of a model needs no great championing, for every one will admit that there is no such satisfactory way of studying design as by this method. But they will add further that it is, of course, too expensive to be practical and is really only for a fad or for very important projects which will justify a large outlay in the study of their design. The cost, they will say, is in most cases prohibitive.

With very important and elaborate buildings the model is necessary regardless of cost. The drawings which won the competition for the New York Court House were made from a model, and it was in plastic, tangible, three dimensions that the design was studied

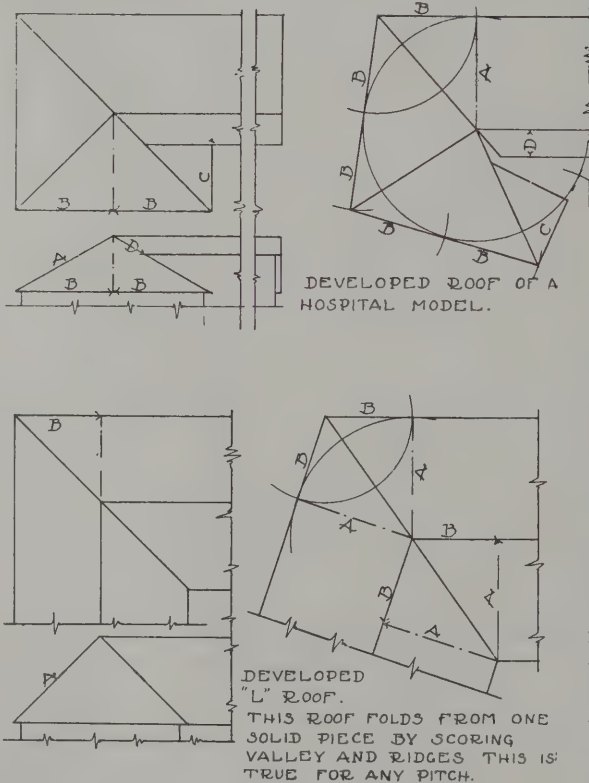
and brought to perfection. Similarly, the nave of the Cathedral of Saint John the Divine was studied in a model, and this model has itself won considerable prominence. But in these cases the outlay is justified by the cost of the building, which allows a large sum for this very study. When we come, however, to houses or small public buildings, the case is different. Six per cent of a million dollars, more or less, gives a large fund for working out design, but six per cent of \$5000 does not justify a model which costs even \$300.

This is a different case, requiring another solution.

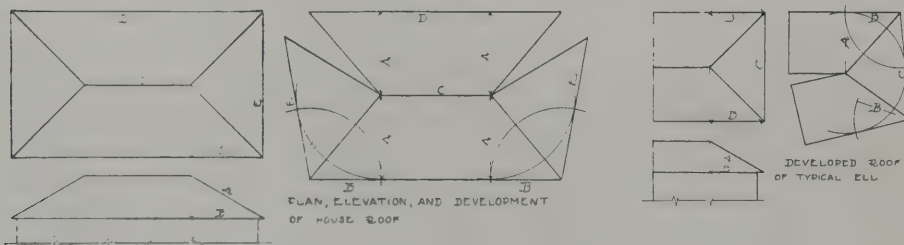
There are few clients who would not be willing to pay part toward a model of moderate cost, for that part would be, in the first place, quite small, and they would have a house in miniature which they could touch and handle and understand concretely.

It is worth something for a man to see just what he is buying, and the problem here is not the making of a model, but the making of a model which shall pay, whose cost will be offset partly by the cost of the drawings which would otherwise have to be made for study and partly by the mutual satisfaction of client and architect. It must be made simply, eliminating detail as the Impressionist eliminates it from his landscape and yet like the Impressionist's work, it must retain all that is really significant and vital *en masse* for the building.

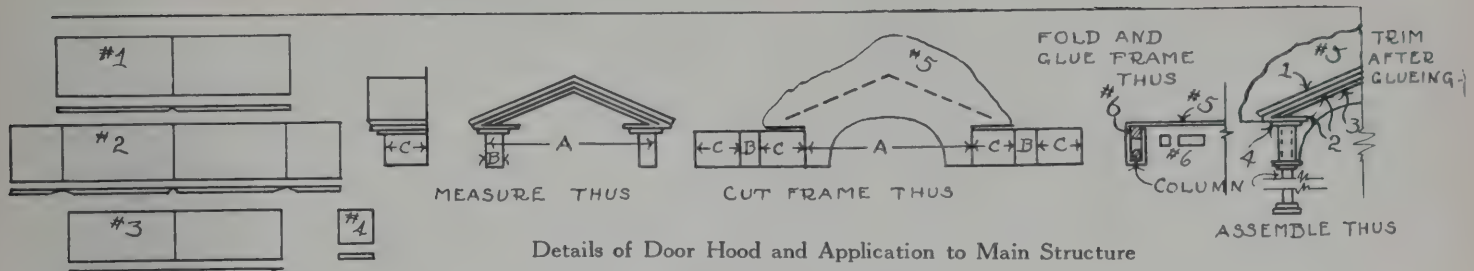
The difficulty of making a model of this kind is mostly in anticipation: do the first step first (and it is always simple) and each succeeding step in its turn; be patient



Example of Roof Development



Showing Steps in Construction of Pitches



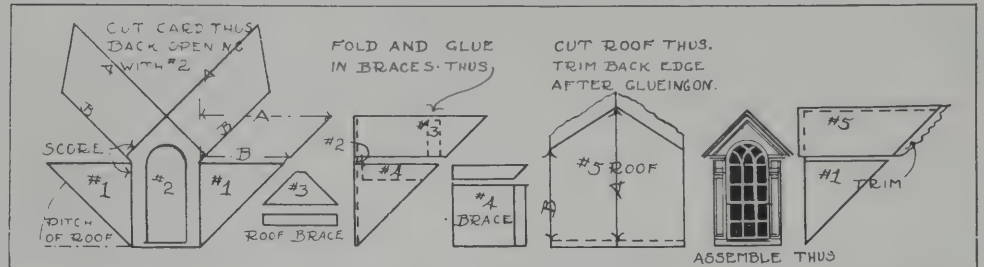
Details of Door Hood and Application to Main Structure

with the disproportion between the detail and the time it takes to build it, and slowly but surely the model takes shape and is complete. Patience with small details is a great factor and yet the total time consumed will not be found to be great. But it must be kept simple!

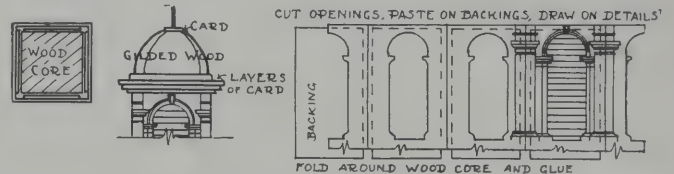
Let this, then, be the first rule: Limit the number of pieces which go to make up the model: do not put on rafter-ends or any attached detail, but cut all that you can in one large piece and either draw on the rest, or leave it out altogether. And the second rule is this: do not make members of many pieces which can be folded from one. The folded one is more sure to be accurate, is stronger, takes less time to make, and by simple developments, a quite complex member can be easily folded into shape ready for gluing. In instances, where a building is made up of several units, they are made separately, and after assembling screwed to one board from below.

The scale at which the model is to be made is very important. If the scale is large, one half inch, for instance, the details are easy to cut and handle, though their size and increased number greatly increase the cost. If the scale is small, say one-eighth inch, most of the details can be left out. But in between is dangerous ground, for the details must be shown and are yet so small that they are difficult to work with, taking much time to make and assemble. Eighth scale is preferable, for it is the least expensive in time and yet gives satisfactory effects of mass and arrangement both for study and for demonstration, and the model looks larger than the scale drawings.

There remain but two more considerations before we take up specific directions: reveals for window and door openings, and landscape in which to set the model. The first seem to be absolutely necessary even though it takes much time to cut them, for if omitted, the whole effect is papery. But the second, the landscape, takes even more time, and does not seem really a necessity. The model is finished, and it seems that a little setting will easily be made, which will display it better. But when the actual time spent in making the ground slope on all sides and in putting down walks and "planting" trees is counted up, it will be found that it is entirely out of proportion to



Typical Dormer Window for Entire Group



Detail of Central Lantern

the value of the result. It looks easy to do, but the appearance is very deceptive. Better lay a piece of green plush over the board to which the model is to be screwed, and let it go at that; or perhaps paint the garden on a piece of detail paper to put under the model, but when an elaborate garden is started there is no place to stop.

The diagrams will doubtless give all the necessary details of cardboard model making, but the process had perhaps better be outlined in brief. The carpenter makes a wooden framework or core to which are attached the elevations, roofs and other details of cardboard. These latter are almost completely finished before assembling, for it is far easier to cut windows and draw in detail while the card is on the drawing board, than after it is on the frame.

Use liquid glue for fastening in most cases and nails where needed. Opaque show-card colors will fill over a nail head and cover a multitude of sins. The glue gets over everything and the paint is a necessity for a proper finish, but keep it out of the window reveals, for it fills the corners. Glue applied thickly to the inside of an edge will attach it solidly edge-wise to a surface, but it must be held in place till set. The plaster cornice is made by cutting down a "potato hill" of freshly-set plaster with a zinc template, kept true by a guide at one side. Keep the template wet and clean, and cut only a little at each drawing. When dry the cornice can be sawed on a mitre and fitted with a file. For simple cornices fill up the eaves with plaster, using a putty knife. A small cornice is so inconspicuous that careless treatment does no harm.

EDITORIAL COMMENT

SPECIAL interest attaches to the fifty-second annual convention of the American Institute of Architects to be held in Nashville, Tennessee, on April 30, May 1 and 2, 1919. It will provide an opportunity for an interchange of thought, maturing from the consideration of the difficulties experienced in the practice of architecture during the war, that have been the subject for discussion for many months in the architectural press and wherever a group of architects has gathered. The proceedings of the convention will be looked to for a definite indication of changes in the objects of the profession and in its methods of functioning, for there is a strong conviction within the profession that changes are necessary if the cause of architecture in this country is to receive a worthy opportunity.

There is need for a big, constructive vision of the force architecture is capable of exerting in the development of our national life, and the Institute must recognize its duty in directing the work of the profession, so that it may be raised to a plane of responsibility that will insure the respect and confidence of the great building public.

We have emerged from the terrible stress of war with new determination to make the world a better place to live in, to provide every one with an opportunity of placing a proper value on his life and services, but also to hold each to the responsibility that rests on him in a democratic community. This thought is not confined to our political life, it is permeating business and the professions, and is part of all our relations in every-day life. Opportunity will be freely given in these new days ahead but responsibility will be as surely exacted. The profession of architecture must submit to judgment on the same terms as all other activities. It will only receive recognition and reward in proportion to the service it renders.

In late years we fear the profession has been too ready to let others assume responsibility that rightfully belonged to it. It has been content to narrow its interests in building to the consideration of æsthetics, for the larger part, with the result that those phases of building which affect its practical fulfillment and are considered in the mind of the client as fundamental, have chiefly been undertaken by others whom architects from their supposedly advantageous position looked upon only as necessary factors in the process of giving material expression to their designs. These, however, are the men whom the public has recognized as the actual constructors; these also are the men who have assumed the responsibility the public demands. Is it small wonder then that our government, which is, after all, composed only of representatives of this same public, turned to engineers and contractors to carry on the great building program incident to the war and dis-

missed architects, except for housing work, stating that there was no architecture concerned with war work and only practical builders were needed?

This experience strengthened the growing thought of many in the profession that the full opportunities for service were not being grasped by architects, and that a new development in professional activities was necessary if architecture was to maintain a dominating position in the building world. The period of reconstruction through which we are now passing is, therefore, of vital significance to architects, for they are confronted squarely with important issues bearing upon the future of their profession. The conditions which are being viewed today with concern by thoughtful architects are the outcome of the standards governing the practice of architecture, that have been promoted by all the sources of influence associated with architecture — the leaders of the profession, the Institute, the schools, and the societies. The tendency for a number of years has been to limit the architect's scope to narrow confines. Many of his duties have been taken over by specialists who have come into being with the greater development of building. Thus, engineering, which was once but a simple science of building, has now come to embrace a great variety of exacting services, but architecture through the activities of its own practitioners and by their own choice, has come to have no meaning except when it shows some relationship to "art." Engineering as a science has taken unto itself power and importance with the development of building, but architecture instead of maintaining its dominant position through growth and expansion, has in a measure disintegrated and must soon receive strong support if its influence is not to be greatly lessened.

This support will not come through the over-emphasis of professionalism that has been characteristic of the Institute's guidance; it will not come through restrictive measures no matter how carefully devised, for only a limited number will choose to respect them. It will only come through the adoption of a broad constructive policy that will at once command the respect of every member of the profession and compel him to elevate his service to the level established by his co-practitioners and recognized by the public as a basis of quality.

The Institute has the opportunity of correlating the efforts of all those working in and with the profession, and of carrying on a forceful propaganda that will awaken architects to their responsibilities on the one hand, and acquaint the public with the great advantages derived from good architecture on the other, enlisting thereby an active interest in the work and aims of the profession that will give it the spark of life required to provide buildings that will meet the needs of an awakened and enlightened people.

As a Key Turns the Lock and Holds the Door Secure

So Does Dovetailed Key
BISHOPRIC BOARD HOLD
STUCCO — Preserving
the Original Beauty
of Walls Indefinitely

Residence of Glenn P. Driscoll, Architect
Des Moines, Iowa
Bishopric Board used on entire house

TURN THE KEY and the lock on the heavy oak door prevents the movement of that door. It is held rigid and secure indefinitely. That's what a lock is for.

In the same way, Bishopric Board prevents the movement of Stucco walls. Its dovetailed key, formed by beveled wood strips, fastens the Stucco firmly—locks it irrevocably.

Bishopric Board differs from a door lock in but one respect—it can never be unlocked! The Stucco and Stucco Board remain sealed together forever, snug-tight to the building, the Stucco Board being fastened by a 6 D nail wherever it crosses a stud, and by four nails to each heavy wood strip where applied over Sheathing.

There isn't the remotest possibility of cracking, crumbling walls when Stucco is applied over Bishopric Board, especially if the Stucco mixture we recommend be used—a mixture universally conceded as the most perfect yet compounded.

Time does not lessen Bishopric Board's effectiveness. The wood strips are creosoted, like railroad ties and old-time wooden bridges. The Asphalt Mastic in which the wood strips are imbedded is itself a preservative and keeps out moisture. The waterproofed fibreboard is a non-conductor and prevents the circulation of moisture.

Specify Bishopric Board if you want attractive, unbroken surfaces in your Stucco construction. Specify it for its desirable insulating and sound deadening qualities. Specify it to provide other advantages for clients through the saving it effects.

When Bishopric Board is used on interior walls, ceiling and partitions, plaster, time and labor are saved. Splendid insulation and retarding of sound are secured.

THE BISHOPRIC MANUFACTURING COMPANY

910 Este Avenue

Cincinnati, Ohio

SEE

HOW

IT

LOCKS

THE

STUCCO

Have you used Bishopric Sheathing—the product which nearly one hundred concerns have specified for workmen's homes? It makes a solid, compact wall and saves 30 per cent over 3/8-inch wood sheathing.

OUR BOOKLET

contains the perfect Stucco mixture and numerous tests and endorsements of Bishopric Board by Engineers, Architects, Contractors and Home Owners. It will be sent on request.





LIGHT WEIGHT CONSTRUCTION FOR LIGHT LOADS

Does it not seem uneconomical to design a floor construction which weighs nearly as much as the load it supports? Yet this is what must be done with many types of fire-proof construction to support loads such as occur in apartment houses, schools, hotels, office buildings, etc. A great part of the materials of construction are thus used to support itself.

The light weight of Truscon Pressed Steel makes it ideal for light-occupancy buildings. The beams are light in weight and correspondingly easy to handle, while only a minimum of materials is required for the floor and ceiling. All members are shop fabricated, saving field labor. Merely set the beams in place, attach Hy-Rib Lath and apply plaster and concrete. No centering nor forms are required.

Truscon Pressed Steel Construction is fireproof and permanent, and economical in all respects. It is the ideal construction for apartment buildings, schools, stores, hotels, etc. Endorsed by successful use in many important buildings.

On request, we will gladly furnish complete information, catalog, etc.

STRUCTURAL PRESSED STEEL DEPARTMENT

TRUSCON STEEL COMPANY
 • YOUNGSTOWN • OHIO • WAREHOUSES AND SALES
 OFFICES IN PRINCIPAL CITIES •

Reinforcing Steel, Metal Lath, Steel Windows,
 Steel Buildings, Pressed Steel, Cement Tile, etc.



TRUSCON
PRESSED STEEL
JOISTS and STUDS



THE EDITORS FORUM



WITH the general resumption of building, architects will enter a new era in the progress of their profession. Without question our country is on the threshold of its greatest economic development and if architecture is a living art, that development will find expression in our buildings. From the early days of our national existence we have enjoyed great natural resources, which, because of their plentifulness, we held in small value, and wasted extravagantly. The war, its terrific cost, the hunger that we see in many parts of the world, our own rapidly increasing population that must be housed, clothed and fed, have brought us to realize that we must conserve our resources, develop our cities and towns along economic lines, eliminate the waste wherever it may be found, if we are to remain a prosperous and contented nation.

The contribution that architects may make to this new conception of things is tremendous. A great part of our national wealth is represented in buildings and the real value of these buildings is dependent upon the skill and ability of the architects who design them. If they are so planned that a large portion of their areas represents nothing but waste, or if they are so poorly constructed that they become a burden to maintain, the aggregate loss is exceedingly great. Such losses already exist, not all to be charged to architects, of course, because hitherto only a part of our buildings have been designed by architects. Our promoters, our methods, something is wrong, for why should there be whole areas of our cities filled with buildings unfit for use and producing no return on the capital invested in them? Only because these buildings were not properly planned to make them have enduring value. They depend on dark enclosed courts for air, light and ventilation, they are not protected by legal restrictions from the intrusion of buildings of such types as prove undesirable to the occupants, and as soon as anything better is offered, their tenants abandon them and they rapidly go down in value.

THE correction of such evils is indeed a large and worthy object, and it is in the power of the architectural profession to wield such an influence that they will be corrected, and our building development proceed along more rational and economic lines than in the past. This means that architects must have intimate knowledge of and direct a greater number of the phases of the building industry than formerly. Building development must be approached from many angles; it is undoubtedly influenced in the greatest degree by plan and design, for if these are wrong, the damage is too great to be

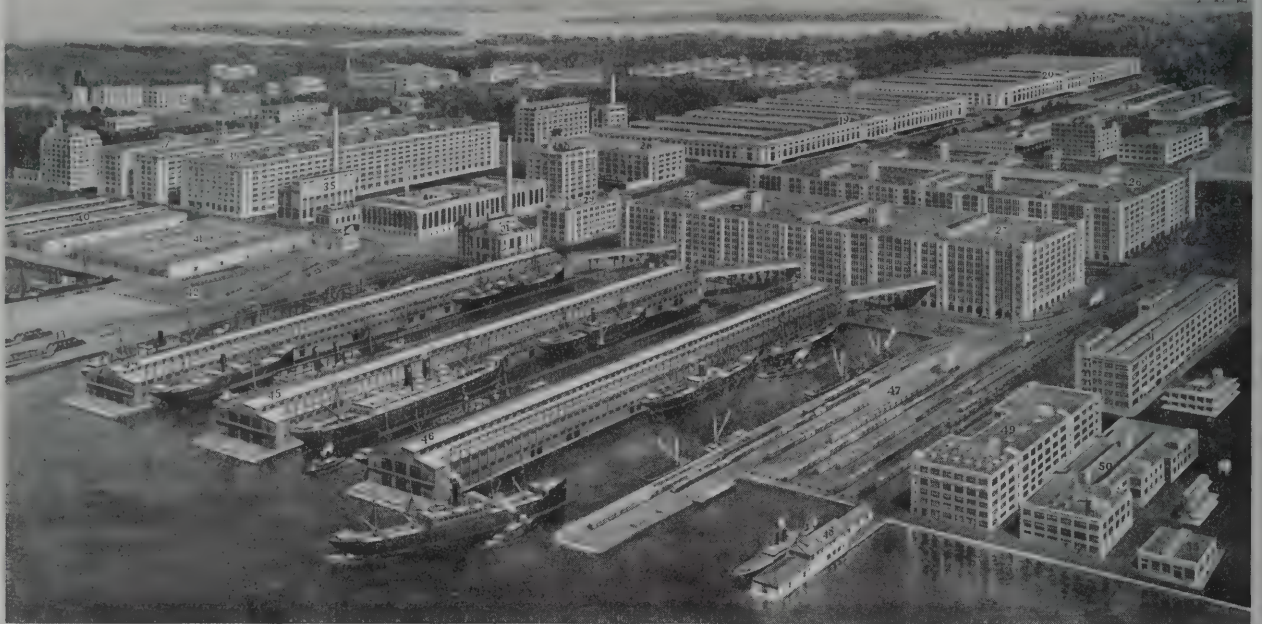
offset by other good features. Architects now being so largely responsible for good building development, it is only natural and necessary that they extend their influence to the other phases. This leads us to financing, where through bad and unsound methods, much waste may creep in, placing an extra burden on property that must be reflected in rents; to the study of low values and their proper proportions to buildings of different types from the investment standpoint; to the matter of maintenance which can be expensive or moderate in accordance with the judgment shown in placing the building and selecting its original equipment, and to the establishment of such restrictions as will guarantee the continuance of a community in the use for which it was developed.

The Post-War Committee on Architectural Practice is now considering the many aspects of the architect's relation to the public, and from the interest that has been aroused throughout the country indicating a desire to take a greater part in our nation's economic development, it may reasonably be expected that the result of that committee's work will be a wider extension of architectural services and interest.

THE ARCHITECTURAL FORUM is desirous of seeing the profession take an active interest in all features relating to development. Beginning with the June issue, we will inaugurate a special section in which the important factors of financing methods, insurance, land values, taxation, maintenance, civic development and other features bearing directly on buildings and their investment value, will be discussed from month to month by authors qualified to speak on the respective subjects.

The June issue will also feature a selection of the most recent general and tuberculosis hospitals, including among the latter a number that have been built in Massachusetts and New York in accordance with recent legislation in those states requiring their various counties to maintain hospitals for their tubercular inhabitants. The principles underlying the treatment of tuberculosis are continually developing and consequently the buildings in which the work is carried on show a constant development. An important article describing the latest type of tuberculosis hospital, written by William H. Scopes of the firm of Scopes & Feustman, who have given long study to tuberculosis hospital planning, will be included in the hospital data.

Another interesting article will describe a new type of moderate rental apartment house, the construction of a number of which has now begun in New York City. The actual contract figures show but a small increase over pre-war costs, due to the plan.



WORK DONE DURING THE ONE YEAR 1918

11,000,000 Square Feet of Floor—of Permanent, Enduring Construction

Included in Turner's work for 1918 were three of the Government's largest War building projects.* Several peacetime building organizations were concentrated on each of the three big jobs and these immense buildings were erected in sections—as orderly and swiftly as though they were separate operations of smaller size.

Including 1917, War work directly for the Government totaled 10,000,000 square feet of floor space. Besides this Turner was constructing at the same time for concerns with War contracts concrete buildings with a total floor area of 6,500,000 square feet for 44 different clients, 80 buildings ranging from 6,000 to 200,000 square feet.

Construction organizations which have been engaged in War work are now ready to erect industrial buildings again. Buildings begun now will be ready before winter. Plan now for the expansion you know is going to come.

* U. S. Navy Fleet Supply Base, 34, 35, 36, 37, 40, 41, 42; * Navy and War Office Buildings, 19, 20; * U. S. Army Supply Base, 26, 27, 29, 31, 44, 45, 46, 47. (Strikes after the armistice was signed prevented completion of piers till after the first of the year.)

Unit costs on work under construction now show that labor efficiency is on a pre-war basis.

“TURNER for CONCRETE”

Turner Construction Company

Philadelphia

Pittsburgh

New York

Buffalo

Boston

THE ARCHITECTURAL FORUM

VOLUME XXX

NUMBER 5

CONTENTS for MAY 1919

PLATE ILLUSTRATIONS

	Architect	Plate
BENEFICIAL SAVINGS FUND SOCIETY BUILDING, PHILADELPHIA, PA.	Horace Trumbauer	65-66
HOUSE AT WATERBURY, CONN.	Murphy & Dana	67-71
HOUSE AT WHITEWOOD, LLOYD NECK, LONG ISLAND, N. Y.	Murphy & Dana	72-74
HOUSE OF PROF. F. W. WILLIAMS, NEW HAVEN, CONN.	Murphy & Dana	75-77
HOUSE OF MRS. W. M. RITTER, MANCHESTER, VT.	Murphy & Dana	78-80

LETTERPRESS

	Author	Page
BUSH TERMINAL SALES BUILDING, NEW YORK CITY.		Frontispiece
THE EDITORS' FORUM.		19
THE FIFTY-SECOND ANNUAL CONVENTION OF THE AMERICAN INSTITUTE OF ARCHITECTS		123
SOME RECENT NEW YORK APARTMENT HOUSES FROM THE WORK OF J. E. R. CARPENTER, Architect.	Wilfred W. Beach	127
FEDERAL AID TO THE HOME BUILDER ..	F. R. Howe	137
BUILDINGS FOR THE COMMERCIAL FARMER ..		141
RECENT COUNTRY HOUSES FROM THE DESIGNS OF MURPHY & DANA, Architects.		143
THE ARCHITECT OF THE FUTURE. . .	C. Stanley Taylor	147
Part IV, An Advertising Policy for the Architect.		
"VICTORY WAY," STREET DECORATIONS FOR VICTORY LOAN CAMPAIGN, NEW YORK CITY H. Van Buren Magonigle, Architect.		151
ST. ANDREW'S EPISCOPAL CHURCH.		153
Charles S. Schneider, Architect.		
EDITORIAL COMMENT.		154

Published Monthly by
ROGERS AND MANSON COMPANY

85 Water Street, Boston, Mass.
Advertising Department, 103 Park Avenue, New York

Yearly Subscription, payable in advance, U.S.A., Insular Possessions and Cuba \$5.00
Canada \$5.50 Foreign Countries in the Postal Union 6.00
Single Copies. 50 cents All Copies Mailed Flat

Trade Supplied by American News Company and its Branches. Entered as
Second Class Matter, March 12, 1892, at the Post Office at Boston, Mass.
Copyright, 1919, by Rogers and Manson Company



VIEW OF THE BUSH TERMINAL SALES BUILDING
FROM BRYANT PARK, NEW YORK CITY
From Photograph by John Wallace Gillies

Helmle & Corbett, Architects

The Architectural Forum series of distinctive architectural New York street compositions. This latest skyscraper springs from West 42d Street and is notable for having architectural treatment on all four sides.

THE ARCHITECTURAL FORUM

FOR QUARTER CENTURY THE BRICKBUILDER

VOLUME XXX

MAY 1919

NUMBER 5

The Fifty-second Annual Convention of the American Institute of Architects

NASHVILLE, TENN., APRIL 30, MAY 1 AND 2, 1919

"CONFESSION is good for the soul," and by the same token the Nashville Convention was well worth holding. A tally of its net accomplishments would hardly fill half a column of this journal, but the relief which the tortured minds of the profession must have felt at its close was immeasurable. We know of an architect, who, when the vagaries and provocations of a client become unendurable, calls in his stenographer and dictates the most scathing letter that he can conceive. A couple of hours later when the letter, neatly typed, is placed before him for signature he reads it through perhaps twice with a grin of the greatest satisfaction, but, instead of signing it, he a little regretfully, but contentedly withal, tears it into a thousand pieces and drops it into his waste basket. His brain storm is over, the danger line is passed, and he again faces his tasks with a light heart.

To an observer on the side lines, the Nashville Convention illustrated the same phenomenon. The worries and cares of the war period were discussed to repletion; the eternal question of education of the young again reared its hydra head, and the varied matters of the Secretary's office and the Institute's publications received due attention, but when all was over the Convention had, as usual, magnificently filled its traditional role of safety valve and the delegates returned to their offices cheered by hearty handshakes and greetings, heartened by the inspiring words of Mr. Keeble's address, and refreshed in body and soul by the last day's outing at the beautiful Hermitage.

The dominant subject, as was expected, was the work of the Post-War Committee, whose earnest and self-sacrificing work, as evidenced by their circular, received the highest commendation.

The other principal topics receiving attention were those relating to education, to competitions and to the question of a permanent and high salaried Secretary, but the topic which, while occupying a very small amount of time, excited the greatest interest, was perhaps the report of the Committee on Jurisdictional Disputes, presented by Mr. E. J.

Russell, its chairman. This was probably the first time that the work of the Institute had touched that of organized labor, and the novelty of the work, as well as its importance, seemed to awaken the sympathy of the Convention to an unusual degree.

The meetings were held in the stately Hall of Representatives of the Tennessee Capitol, a room the architectural importance of which deserves wider recognition. Built entirely of the massive gray native stone and, aside from the beautiful Corinthian colonnades along the galleries, almost free from detail or unnecessary lines of any sort, it presented an object lesson in dignity and simplicity which was not lost upon the delegates. Perhaps some day the newly formed Tennessee Chapter will prevail upon the authorities to remove the dingy framed photographs of past legislators which encumber the walls, straighten up the portraits of Andrew Jackson and his colleagues which hang over the entrance and possibly eliminate some of the clocks of different periods which now adorn its ashlar.

While the topics above mentioned received in detail the principal attention of the delegates, it was observable that the keynote running through all was the question of improving the profession (not the Art) as a whole, and to that end aiding the younger men in their efforts to become worthy practitioners. This departure from the spirit of some previous conventions in which questions of fees, competitions, and by-laws have been pre-eminent was a pleasant change, perhaps even marking an era, and was probably due in no small measure to the broad and simple humanism of President Kimball's character, as was well instanced by his opening address, which was above all a plea for the brotherhood of professions, unselfishness in practice and a helping hand to the beginner.

The reports of the officers and the formal welcome to Nashville by the mayor occupied much of the first forenoon. The financial affairs seem to be in a fairly satisfactory condition, but, after considerable discussion, the dues were left unchanged, except that dues of Fellows will in the future be the

same as those of other members of the Institute.

The somewhat weighty reports of the various committees followed, each introducing its quota of perplexing business, so it was with a feeling of relief that the delegates adjourned at five o'clock to the Parthenon in the beautiful Centennial Park, to view an art collection arranged by the Nashville Art Association and to experience a foretaste of Nashville hospitality.

The evening of Wednesday provided a surprise. The somewhat searching cross-examination of the Post-War Committee's circular, followed by the various reports of other committees, had left many architects in a somewhat despondent mood. It seemed as if all the profession's previous efforts had been on the wrong track, and as if Architecture were wandering in a gloomy wood from the recesses of which in all directions peered the greedy faces of the engineer, the building company and the real estate, all ready to pounce upon her and destroy her. The words of Wallace Irwin came to mind:

"I sometimes feel that I am not so good,
That there are foxier, warmer babes than I,
That Fate has given me the calm go-by
And my long suit is sawing mother's wood."

Upon this dejected frame of mind the cheering words of the address made by Mr. John Bell Keeble, an attorney of Nashville, fell first like a grateful balm, and then like an inspiring call to arms. A natural speaker, to whose skill in oratory is added a charm of manner peculiar to the South, Mr. Keeble's address probably did more to "set up" the Convention than any other thing could possibly have done. His subject related to professionalism and it treated of the duties, privileges and rewards of the professional man as compared with those of the man of commerce. After a few preliminary remarks in which he regretted that owing to recent legislation, the old-time Tennessean hospitality had to be curtailed in certain directions (Tennessee is not only dry but cigaretteless) he proceeded to an analysis of the professional man's character. After establishing the fact that he must, in any event, be a man of some culture, he found that a sound mastery of fundamentals was essential. "Your calling and my calling," said he, "does not go haphazard; it is not the inspiration of genius alone, but it is a talent and genius manifesting itself through the mastery of the inheritance of ages of men who have studied and thought along these lines . . . the result of the science of your calling and mine is the accumulation of contributions made by thousands and thousands of men, both mighty in position and humble in position, who faithfully and honestly have built that calling up."

Next he found that such knowledge of a profession must be used. "One of the great distinctive qual-

ities of every profession is this," said he, "that the professional man ought to feel that whatever he knows and whatever he has acquired in his profession, is not merely for the gratification of his intellectual appetite, not merely for the satisfaction of the possession of knowledge, *but he holds it in trust for all Society*. The professional man is the greatest and most important trustee for the preservation and development of society that this world knows, because he holds to a certain degree, and each of us, you and I, enjoy a capacity that properly applied can ameliorate the conditions of society and the troubles and necessities of individual members of it, and that is one of the distinctive features of a professional man. He must apply his capacity to the service of others. . . . He is the man who stands ready to aid other men in their conceptions of labor or work, or to aid them in the establishment of the enterprises from which they often reap large profits."

After pointing out that the professions have it in their power to put a positive brake upon any further business or any phase of life, the speaker alluded to the indescribable pleasure felt by a professional man in the satisfaction arising from mental exaltation, when he knows that he has solved a problem that was worth while. "A professional man," said he, "gets a pleasure in life that is best expressed by Rudyard Kipling in his lines:

"And only the Master shall praise us,
and only the Master shall blame,
And no one shall work for money,
and no one shall work for fame;
But each for the joy of the working,
and each, in his separate star,
Shall draw the Thing as he sees It
for the God of Things as They Are!"

And that is the joy and comfort that the professional man gets, that the men of other callings in life can never understand."

After recalling how in 1914 the most helpless people in the world were the so-called business men — he described how the journalist, Clemenceau, seventy-six years old, came to the rescue of France, how the little Welsh lawyer, Lloyd-George, proved to be the man of the hour in England, and how the saviour of the Allies was Foch, the schoolmaster in a war college who had never commanded an army in his life, and how finally the type of man that seems to be fashioning the destinies of generations yet to come is the school teacher, the professor, the President of the United States, and in closing made this parting appeal:

"You have every reason to believe that if your profession and mine depart from traditions, the tradition of unselfish devotion to your calling and the tradition of high and noble purpose of service, you

cannot expect your profession—I cannot expect mine—to contribute to the welfare of society in the future as it has in the past, because it goes without saying that the men who have achieved so much for the good of humanity through professional training and professional standards, are the products of that training and the result of those standards, and if you strike them down, or suffer them to be impaired, though you and I may gain some temporary reward, we are placing upon the altar the spirit of professionalism that has been the soul of progress of society for hundreds and hundreds of years.”

Mr. Keeble's address evoked the greatest enthusiasm and he was recalled to the platform to receive the thanks of the Convention.

The proposition to appoint a permanent Secretary at a tentative salary of \$8000 per year was referred to the Post-War Committee. Various propositions in relation to the publication of the official organ of the Institute were discussed, but no very drastic action was taken.

An eloquent appreciation of Frank Miles Day by Mr. Pond of Chicago was heard on Thursday morning, the entire assemblage rising in token of the respect and affection in which his memory is held—after which the names of William Emerson of New York, N. Max Dunning of Chicago, Robert J. Farquhar of Los Angeles, E. P. Bissell of Philadelphia, W. H. Kilham of Boston, Robert McGoodwin of Pittsburgh, W. J. Richardson of New York and J. C. Llewellyn of Chicago were proposed as Fellows.

The report of the Committee on School Building Measurements was accepted subject to revision of the nomenclature of the various classes, so as not to be confused with those of various city building laws. The report in favor of a National Housing Conference under the auspices of the Federal Government was adopted, as was that for a Victory Park and Forest between Washington, Baltimore and Annapolis.

A resolution introduced by the Boston Chapter in favor of a more informal type of competitions for small war memorials failed to pass.

The question of signing buildings and advertising came up and, while no very definite action was taken, it was felt that while the signing of buildings after completion was to be encouraged, the placing of the architect's name upon a building in process of construction should be done with some care, and that the Institute relied upon its members to keep all advertising within the bounds of truth and good taste and in conformity with the highest ideals of the Institute.

A lengthy but entertaining discussion upon education occupied Thursday afternoon. The Illinois chapter had come prepared with a carefully devised constructive program for the revision of the standard curriculum, tending toward a more practical training for present-day work and the elimination to a con-

siderable extent of the Beaux Arts idea. The students would be received into offices for a part of the time, and as a part of the school work would listen to lectures on textiles, modern industrial plants, housing, city planning, business promotion and financing, surveying, etc., receiving a certificate as “draughtsman” at the end of four years, and a degree and the title “architect” the next year, should they elect to continue their studies. The report was listened to with much interest. Professor Laird, however, thought that teaching was an occupation in itself the same as practicing, and neither was able to direct the other. “Schools,” said he, “are the nursery. You can criticize the product, but you must leave the method to the teachers.”

Mr. Ittner proposed the English scheme of apprenticeship and Professor Lorch spoke along the point of view of the teachers. The atmosphere, which was getting a little tense, was relieved by Mr. Magonigle, who in a most amusing speech full of gentle satire on the additional subjects which should be included in school curricula, won spirited applause and led after a while to the not too original conclusion that the acquisition of general culture is personal and cannot be injected into any one's personality.

The report of the Committee on Education, which Mr. Ackerman explained with interesting side discussions, showed much careful thought and was in a way in line with the proposals of the Chicago delegation. The report, which took the stand that the almost universal practice of teaching design without any contact with the world of reality and imposing purely academic judgments upon the work accomplished by the student was faulty, seemed to be unanimously approved. Mr. Ackerman spoke of one set of problems which had come to his attention which while slightly ultra, and in a course of decoration, were yet typical, viz: A Roman Entrance, A Royal Bed, A Perfumery Bottle, and an Astronomer's Library, and felt that the student's experiences must be removed from these hypothetical realms into the everyday world of practice.

A great deal of interest was shown on Thursday morning in the report of the Committee on Jurisdictional Disputes as presented by Mr. E. J. Russell. This Committee, composed of Mr. Russell, the Chairman, W. H. Kilham and W. S. Parker, had a most interesting series of meetings with the heads of the Building Trades Council of the American Federation of Labor. These meetings, held successively in Boston, New York, Cleveland and Indianapolis, required considerable time and travel but were remarkable for the expressions of interest and good will towards architects from the various representatives. The meetings were enlarged to take in representatives of the contractors' and employers' associations and the Engineering Council; in fact, it is worth noticing that in this case the movement

was inaugurated by the architects who invited the representation from the engineers. Much help was given by Mr. John B. Lennon, representing the United States Department of Labor, and the result of the deliberations, which were cordial and harmonious to the last degree, is an agreement to eliminate absolutely the jurisdictional strike. Police power to the extent of suspension of members failing to observe the regulations is provided. The duty of the architect is to so word his specifications as to arrange all trades under their proper headings according to information which will be duly furnished.

Mr. D. K. Boyd followed with a plea for standardization of materials, exhibiting incidentally the sets of standard details for carpentry and mill work prepared by the Government during the past year.

He strongly advocated the use of standardized window and door frames and mouldings and the keeping of standardized details for all possible parts of the work ready for use in all offices. He alluded to the careless wording of specifications which often involves additional expense.

The ever thrilling subject of competitions was next taken up and was replete with interest, though a curious change from the status of some previous years was noticeable in the fact that, aside from the position not unfavorable to competitions taken by Mr. Swartwout and a few others, the only strenuous supporter of the system was Professor Laird, who maintained that better schemes for buildings were obtained in competition, and that a competition based on a well worked out program was even equivalent to a post-graduate training for the fortunate architects who participated. This brought two or three members to their feet with the inquiry why in that case it was ever necessary to go beyond the advisor, and as a matter of fact, why competitions for the post of advisor might not be equally as good as for architects. Messrs. Taylor, Snelling, Nimmons, Mauran and Hopkinson spoke in favor of direct selection as against competitions and Mr. Hall felt that research was the great feature of our work, which must necessarily be done in contact with the client, a method impossible under the competition system. Mr. Lawrence of Oregon felt, however, that in certain states competition was the only method of obtaining good designs for public work.

The question of the responsibility which should be assumed by the architect was next discussed. Mr. Llewellyn of Chicago maintained that architects should use increased care in making estimates, and eschew the "cubic foot" kind. Neither the architect nor the engineer can actually guarantee costs, while as for responsibility for errors in construction, every man must answer for himself. Mr. Pond of Chicago, referring to the old riddle, "Profession or Business," said it should read, "Profession and Business" and recommended Polonius' line, "This above all — To

thine own self be true" as a good maxim to confront one's own face in the mirror each morning.

Friday morning saw some further discussion of the matter of Public Information and the passage by a narrow majority of the vote empowering the Post-War Committee to draw upon the reserve fund to the extent of \$10,000. The election results were announced, the old board of officers being re-elected with the exception of Vice-President, to which office Clarence A. Zantzinger of Philadelphia was elected. The new members of the Board of Directors are Messrs. H. H. Kendall of Boston, E. H. Hewitt of Minneapolis and W. B. Ittner of St. Louis. The newly elected Fellows received their certificates, and a congratulatory vote was passed to Mr. Keller of Hartford, who has completed his fiftieth year as a member of the Institute and attended this Convention.

On motion of Mr. E. J. Russell a tribute was paid to the memory of Arthur D. Rogers, the late publisher of *THE ARCHITECTURAL FORUM*.

At eleven o'clock the entire party took motors for a delightful ride through the environs of Nashville, a charming and highly cultivated country, to The Hermitage, the home of Andrew Jackson, where an old fashioned barbecue was provided by the local Chapter. The house itself, a delightfully spacious, high ceilinged southern mansion, with its old fashioned flower garden and stately avenue of ancient cedars, is kept in its original condition by a patriotic association and is full of interesting relics, including most of the original furniture. It was interesting to learn that during the Civil War, Federal commanders protected the place with a strong guard, which doubtless saved it from destruction.

The barbecue, held on the greensward under the shade of great hickory trees, was a novel experience to most of the guests, and the local color was heightened by plantation melodies from a band of colored singers from Fisk University, as well as by the black pigs which dotted the landscape and occasionally became interested in the proceedings, while the drive home by way of the great Government powder plant, "Old Hickory," added another feature of the greatest interest to the day.

Taken all in all, the Fifty-second Convention even though no matters of great moment were settled, must be regarded as a success. The value of each recurring convention lies more in the free heart-to-heart discussion of professional questions than in the absolute settlement of any of them. Most of these questions are as old as the hills, but each year sees some progress made and a better standard raised and maintained for the practice of architecture. The keynote now is democratization, help for the student, protection for the small-town practitioner and a genuine desire to attract to the Institute, for their own good as well as for the Institute's, the men outside of the organization who ought to be in it.

Some Recent New York Apartment Houses

FROM THE WORK OF J. E. R. CARPENTER, ARCHITECT

By WILFRED W. BEACH

MUCH thought and attention have been given to the small American home to the end that it may be redeemed from the vulgar and commonplace and be made to possess both architectural merit and maximum utility.

But truly none of our habitations has been more needful of the attention of real architects than the apartment houses of New York City — those products of the speculative builder's zeal, at once so numerous and so offensive. As one writer has fittingly said, their number in The Bronx is as the sands of the desert, and a structure in their midst having architectural claims is an oasis indeed.

Until quite recently an overwhelming majority of this department of urban improvement was handled under "plan factory" methods, the designs and working drawings evolved either by the actual builders or by architects (?) who mechanically repeated plan and detail with a facility that rendered every process relatively as cheap as their galvanized iron cornices. When something of higher class was demanded, they

merely spent more money, piled on the ornament and improved upon the materials, not upon the design. There was no blood in the turnip.

During the past few years, however, certain architects of the front rank have broken into the stronghold of these "designers" and have produced several noteworthy structures. Among these the work of Mr. J. E. R. Carpenter stands out pre-eminently, although he himself modestly ascribes to Mr. William A. Boring the credit of having crystallized the ideas which produced the first of the very high grade buildings for tenants of the wealthiest class and thereby established the precedent.

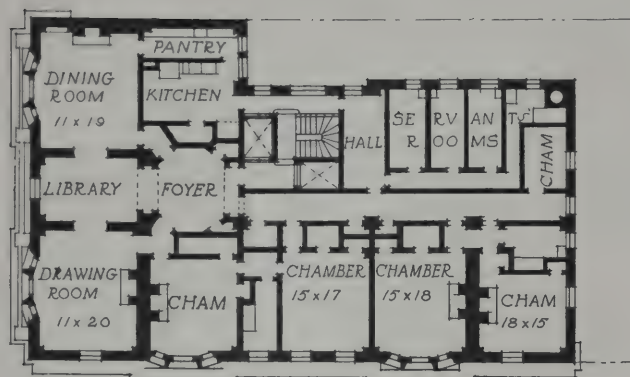
This prototype is at 540 Park Avenue at Sixty-first Street and was built about twelve years ago. It was followed by another by the same architect at 521 Park Avenue, a block distant, and of somewhat improved planning.

Until the advent of these forerunners there had been strong prejudices in the minds of people of the wealthier class against the idea of living in apartment

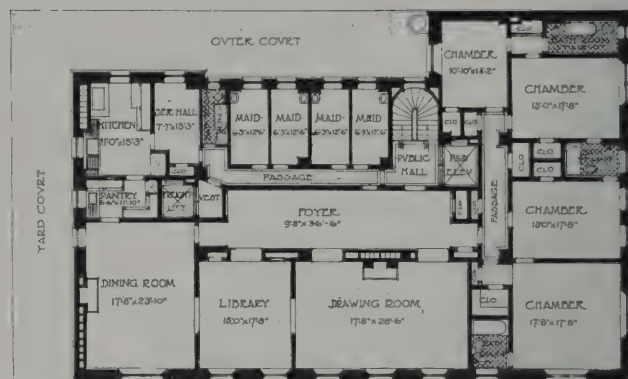


Entrance Hall in Apartment Building, 907 Fifth Avenue, New York City

J. E. R. Carpenter, Architect



Typical Floor Plan, 540 Park Avenue, New York



Typical Floor Plan, 521 Park Avenue, New York

William A. Boring, Architect

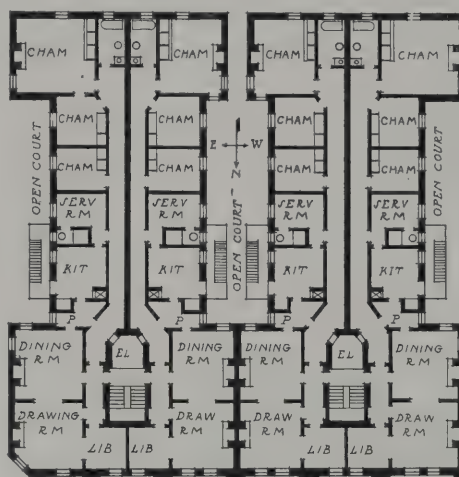
houses of any sort. Families of this set were housed almost exclusively in their own residences or in single houses on the more fashionable streets and avenues. To overcome their deep-rooted objection, wean them from their prejudices and, at the same time, produce an attractive investment with small chance of failure was the thing to be evolved.

It is interesting to consider somewhat in detail the many and apparently conflicting requirements which have been so successfully met by Mr. Carpenter and some of his confreres.

First, there is the selection of a site of especial fitness as to its surroundings and their greatest possible permanency. In New York City the chief functions of localities undergo continual changes and the careful investor is particularly wary as to this aspect of a proposition.

This mutability of metropolitan realty has its effect exemplified in no more striking manner than in the case of the Home Club, one of the earliest and most beautiful of these high class apartment buildings, designed by Tracy & Swartwout in 1906 and located at No. 11 East Forty-Fifth street. It is now an apartment hotel, with the ground floor converted into shops.

In planning, construction and equipment the local and state tenement house laws prescribe cer-



Type of Floor Plan Formerly Produced in New York, shown for comparison

tain conventions and limitations from which there can be no deviation nor dissension. These have a considerable influence on this class of building as well as on the cheaper housings. Examination of the accompanying plans may disclose, to the architect who has not encountered these laws, provisions apparently detrimental to the best development of a high class building of the kind. In general, however, it may be said that no other laws have really proven so beneficial. In this class of building, fully as much

as in any other, "the plan's the thing," of course. And the successful plan has actually furnished the solution of the whole matter.

When one notices that the pantry in such an

apartment is about the size of the average living room of the ordinary type and that three of these might be carved out of the space given over to a palatial drawing room, one begins to appreciate the scale of such an *apartemente de luxe*.

Compare, for example, the building of ordinary type, built about 1895 at 52-62 West Fifty-Eighth street, with the typical plan of Mr. Carpenter's building at 630 Park Avenue. Each occupies a plot one hundred by one hundred feet. The former has four apartments to a floor, including eight baths, four kitchens, two



Typical Floor Plan, 630 Park Avenue, New York

J. E. R. Carpenter, Architect

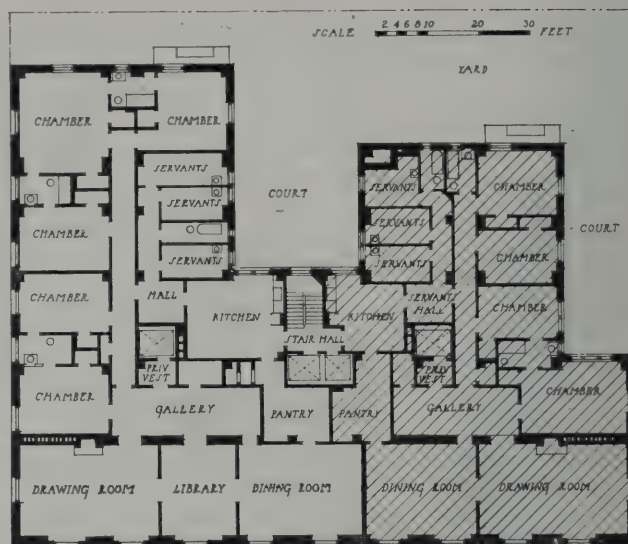


APARTMENT BUILDING, 630 PARK AVENUE, NEW YORK CITY

J. E. R. CARPENTER, ARCHITECT

elevators, two front stairs and four dumb waiters. The rentals per floor run \$4800 to \$7200. The latter has but one apartment to the floor with five baths, two toilet rooms, one kitchen, two elevators, one rear stair, no front stair, and no dumb waiter, the rentals ranging from \$10,000 to \$13,000 per apartment, or floor. The former cost much more to build, in partitions, doors, windows, hardware, lighting equipment, etc., and, even if its location were as favorable, it could not bring an average return equal to that of the latter.

The economy of such ventures is thus assured, provided that the necessary tenants of the right class are forthcoming. These must be attracted by the offering of accommodations of the scale to which such families have been accustomed in their own homes; with the added conveniences (or dearth of inconveniences) offered by the highest class apartment



Typical Floor Plan, 550 Park Avenue
J. E. R. Carpenter, Architect



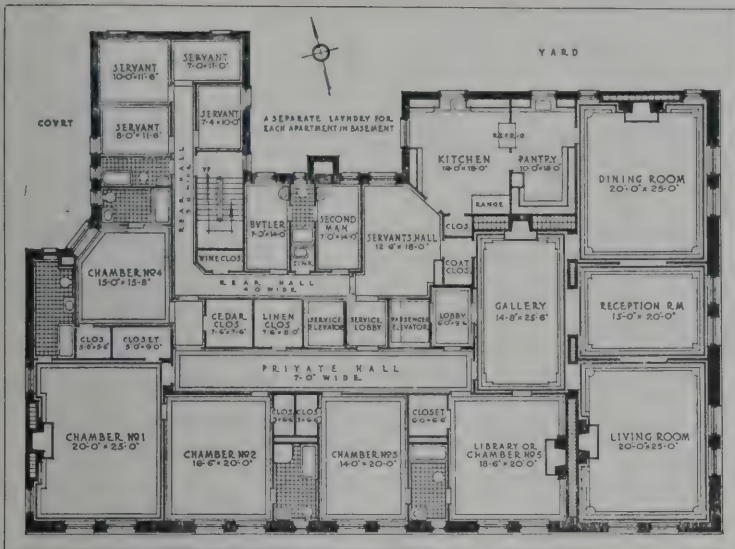
Apartment Building, 550 Park Avenue, New York City

house service. That such conditions have been met and tenants found willing to pay the charges have been amply demonstrated.

Study of these conditions deduces as a basic principle of the scheme of planning the segregation of the three major elements; the entertaining department, so to speak, the family domicile and the service quarters. This is accomplished by careful manipulation of the available area, as can be noted in the accompanying plans and again by making comparisons with arrangements in the older plan.

Inasmuch as the first floor is considered of minor importance as a producer of revenue, the arrangement of its rentable space is subordinated to the features of main and service entrance and the plan above. The superintendent, being a functionary of higher class than ordinary, is given an apartment in the rear corner of this floor in place of the basement space customarily allotted.

The next advance, according to Mr. Boring, in the development of the high class apartment house, will be the utilization of the first story for select shops and offices of a grade compatible with the other tenants. At a less expense than is requisite for living quarters, the space can be divided into store rooms that will bring double the



Typical Floor Plan, 640 Park Avenue
J. E. R. Carpenter, Architect

rental or more, the first floor being the least desirable in the building for residence. The uncertain feature is, of course, whether the shops would tend to depreciate the exclusive character of the property. Again much depends upon location and upon the general management of the building.

An attempt in this direction has already been made in the apartment buildings recently completed in the New York Central Terminal property, designed by Warren & Wetmore, the ground floors of which are given over to small shops. But these buildings are really a cross between apartment house and apartment hotel, in that they offer the services of maids, valets, caterers and the like to be supplied by the nearby Ritz-Carlton Hotel, with which there are under-street connections. However, they are sufficiently like the class of property under discussion to make it interesting to note and gauge the effect of this experiment.

The plan of but one of Mr. Carpenter's first floors is here illustrated (that at 907 Fifth Avenue), it being more or less typical of all. The entrance is in keeping with the general character of the building, elegant and dignified, but never overloaded, a fitting approach to just such a home. Above the first floor, the function of the passenger

elevator lobby is that of a vestibule in a private residence and it is so treated, serving generally a single apartment on each floor, sometimes two to a floor. From this, each apartment entrance is directly into a gallery or reception hall, though occasionally a secondary door is introduced leading into the private family hallway and found convenient.

We note, in the majority of these buildings, the elimination of the front stair, there remaining no function for it to serve. The rear stair fulfills all requirements of the tenants, and the outside fire-escape completes the demand of the law that two means of egress shall be provided, even in fireproof buildings.

The gallery in each suite, being but a lobby or foyer, needs no direct outside air



Apartment Building at 640 Park Avenue, New York City

or lighting, but is given as much communication as is feasible with the other rooms of the major part. These occupy the commanding position in the plan and consist of a large drawing room or salon, a smaller living room or library and the dining room; though it will be noted that the nomenclature is interchangeable and that the smaller room is sometimes omitted.

The family portion contains four or more bedrooms, with ample bathrooms, one or two dressing rooms and many closets fitted with space-saving appliances. A private sitting room, boudoir or den is shown in some plans. If such is not provided, it is usually found that one of the bedrooms, larger and better located than the others, can be so used, if desired. Otherwise, the arrangement is not particularly flexible, the variation in demand being more as to the number of rooms in a given unit than the diversity of their usage.

In the 907 Fifth Avenue building a small conservatory or glass breakfast room is provided. Beyond this, no effort is made to supply the glazed rooms (sleeping porches or sun parlors) found so necessary in high class apartments in other cities. The reason is simple. To the wealthy New Yorker, his town house or apartment is merely his winter residence and so used; his seashore or country estate serving in an in-

creasing degree as the real family seat. Thus we see why sleeping quarters make up the sum total of the private group in these plans, the remainder of a suite, aside from the service section, being semi-public in function.

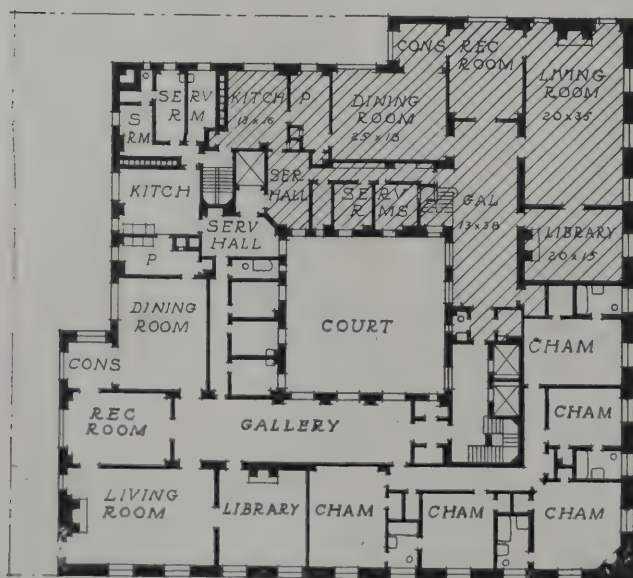
This family portion must not only be completely segregated from the rooms of entertainment but also from the service part, both for the sake of freedom for the family and for the satisfaction of the servants as well. It is the latter who have experienced the greatest advance in the comfort and general livableness of this, their newest habitat. In some of the older houses it seemed that the architect must have expended much study to find the meanest possible place for use of the servants without violating the law. But, inasmuch as the well-being of the entire household is directly dependent upon that of its

servants, it is manifestly wise that the needs of the latter be given the most careful consideration.

Our middle classes have quite generally solved the servant problem by eliminating it as far as possible, but such solution can scarcely be expected to appeal to those who can still abundantly afford the luxury, hence in the modern apartment house the servants' wing is as carefully studied as the balance of the plan. In its evolution, for instance, it was noted that the



First Floor Plan



6th, 8th, and 10th Floor Plans Showing Duplex Type



7th, 9th, and 11th Floor Plans Showing Duplex Chambers

Apartment Building, 907 Fifth Avenue. J. E. R. Carpenter, Architect



APARTMENT BUILDING, 907 FIFTH AVENUE, NEW YORK CITY

AWARDED GOLD MEDAL BY NEW YORK CHAPTER, A. I. A., FOR MULTIPLE DWELLINGS OVER SIX STORIES HIGH
J. E. R. CARPENTER, ARCHITECT

one have the "exclusives" forsaken their many-hundred-thousand-dollar city homes, either passing them on to those of newer wealth or submitting them to the ruthless vandalism of the steadily advancing commercial tenant.

As illustrations of Mr. Carpenter's work we have selected several plans sufficiently variant to afford a clear idea of the scope of his designing. Of these all but the one at 116 East Fifty-Eighth Street are distinctly of the type we have been describing, the exception being introduced to show a very clever handling of a somewhat smaller problem. A notable feature of this plan is the axial arrangement of the principal rooms and the effect of spaciousness thus gained.

The building at 907 Fifth Avenue is worthy of special study, both on account of its very superior external design and because of its unusual features of plan. This building won the 1916 gold medal of the American Institute of Architects for multiple dwellings over six stories in height. Overlooking Central Park at Seventy-Second street, it stands out as a notable architectural achievement on the Avenue of Beautiful Buildings.

It is built around an inner court thirty-two feet square, the size being fixed by law for apartment houses of this height. On this court are grouped the servants' bedrooms and the entrance galleries. No other major rooms and no kitchens have openings on the court.

In addition to the entrance features, which are worked out in exceptionally good taste, the first story contains one large and one smaller apartment, as well as one of four rooms for the superintendent. The second, third, fourth and fifth stories have two apartments of fourteen and sixteen rooms each, while those above contain one each of nineteen rooms and half of a "duplex" of twenty-one rooms, very ingeniously arranged. These various suites have from four to seven baths each, in addition to the number of rooms given. The rentals range from \$5000 and \$10,000 for those on the first floor to \$25,000 a year for the best duplex suites.

In the mechanical equipment of these buildings there is also a considerable improvement over houses of the commoner type. The constructive materials cannot greatly vary; both must be fireproof, if of elevator height. But permanent furnishings, trim

and equipment must be of the highest order. Incidentally, it may be stated that there is very little so-called "built-in furniture" to be found in these apartments, another point of saving for the investor. Mention has already been made of the saving in hardware and lighting fixtures by reason of the great reduction in the number of rooms in a given area. Such fixtures, though less in number, are selected with the greatest care, or especially designed for their particular location. Few ceiling outlets are installed, the lighting being generally by brackets and pedestal lamps. For the latter, numerous baseboard plugs are provided and these are also usable for every conceivable electric contrivance, from curling iron to kitchen range and vacuum cleaner. Floor outlets are seldom or never installed, being expensive and inconvenient to place, as well as awkward to use in connection with rugs. Call bell and telephone wiring is installed in same manner as that for lighting, each apartment having its independent telephone.



Apartment Building, 960 Park Avenue, New York City
J. E. R. Carpenter, Architect

Electric vacuum cleaners are furnished by the tenants, an arrangement found much more satisfactory than piping the building from a stationary plant in the basement. The latter would produce no additional rent as it might in less favored buildings.

Gas is used only for cooking and laundry purposes, the kitchen ranges being most complete, as is also the other kitchen and pantry equipment, including refrigeration. Ice is handled from the freight elevator, the installation of ice-making machinery being held unwarranted.

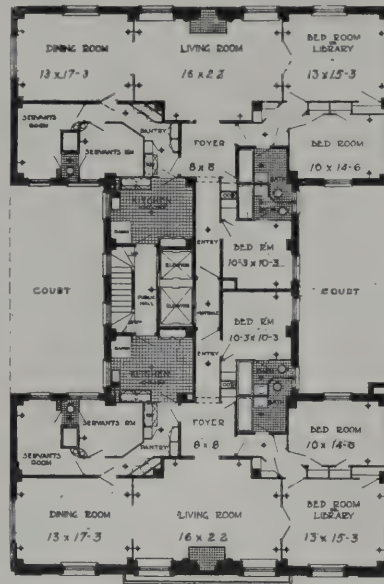
Laundries are generally located in the basement, sometimes on the roof, but the latter space brings better financial return when made into servants' rooms. One laundry compartment about eight by fourteen feet is customarily allotted to each tenant, though, where the space is too confined, one laundry is assigned to two families, and lockers provided for each. Three tubs and a gas heater directly connected into a hot-air drier are found in each laundry.

Each tenant has also his individual basement store room, the remainder of this floor being given over to the mechanical equipment of the building, electric elevator motors and drums, incinerator, garbage can washer, water heaters, steam boilers, and coal storage.

Heating is by low pressure steam with direct one-pipe radiation in entrance hall and service portion; elsewhere by two-pipe gravity modulation system with direct radiators enclosed under windows. No thermostatic control is attempted and no ventilation provided except in kitchens and, in case of an inside pantry, a special vent duct, with or without a small electric blower.

It must be remembered that special equipment and conveniences of every description have at one time or another been installed in one or more of these buildings, hence the newest has always the benefit of carefully tried experiments.

Two principal objections to apartment house living on the part of those who could afford to reside as they chose have always been noise and odors. Careful sound-proofing has practically eliminated the former. Much of the latter was due to the locating of kitchens on small inner courts which acted as flues and distributed their favors (and flavors) as the breezes willed. This is now largely obviated by placing kitchens on outside corners and giving them windows in two directions where possible. Each kitchen is also ventilated into a hood over the range, the duct from which is twelve inches square or larger and extends through the roof. Blowers have been



Typical Floor Plan, 116 East 58th St.
J. E. R. Carpenter, Architect

installed in such ducts but appear unnecessary.

Bathrooms are seldom ventilated other than by outside windows, though closets with local vents are sometimes used. While the plumbing is the best that can be obtained, yet there is a noticeable lack of affectation and unnecessary expense. In a typical bathroom for the family or guests there will be a flushometer style closet, pedestal lavatory, built-in cast iron enamelled tub with shower and a neat white recessed wall cabinet with mirror door; no bidet, no sitz-bath, no separate shower or sunken tub. Servants' bathrooms contain tub and closet only, there being a lavatory in each of their bedrooms.

Bathrooms have tile floors and wainscoting with the most approved and simple type of cap and cove base. Walls above such tile work are painted in appropriate tints as are door and window trims of wood finish.

The desire on the part of tenants residing in apartment buildings of this caste and refinement is to have perfect cleanliness throughout public as well as private portions of the house. It will be noticed that the details of equipment and minimum of floor areas devoted to the approach and service of individual suites make for a simple and effective care of the premises by a comparatively small corps of porters, or charwomen attached to the superintendent's staff.

* * * *

Thus has the problem been studied and solved and thus has been most effectually demonstrated the fact that the architect who will set himself to the analyzing and working out of a particular phase of the relationship between architecture and existing things will find himself in command of a new situation, quite in advance of those content to follow in the rut and accept data from their clients or predecessors.

That Mr. Carpenter has also evolved the acceptable system for financing such ventures as he has first proven worthy of investment is but another feature of the subject.

And success has topped it all — success for the investor, for the architect and for the tenant. In fact with no failures charged against him, Mr. Carpenter stands an unquestioned authority on this special phase of building development, it being the general custom of realty and financial men in the metropolis to first submit for his review any such projected improvement of property.

Federal Aid to Home Building

By F. R. HOWE

Former Member Operating Division, United States Housing Corporation

PERHAPS the most badly disorganized industry by reason of the war is the building industry. The demands for its products, however, were never greater than at the present time, especially in the matter of homes. This great need for housing and the disorganization of the building industry have led to a study of possible reforms in the present method of financing buildings.

Provision of homes for the mass of people in the United States has always been considered an uncontested privilege of private enterprise, but that the Federal Government should take a hand in the financing of building may not seem extraordinary if we view housing as one of the three essentials required to support human life. The other two, food and clothing are already being financed through Government agencies,—the Farm Loan Banks and the Federal Reserve System. By the use of Government credit the cost of real estate loans can be reduced to a minimum and if such credit takes the form, as it should, of amortization loans or loans paid off over a period of years by annual instalments, that other great reform is accomplished of creating out of the earnings of properties mortgaged, an annual fund available for re-investment in new buildings.

In Europe government aid to building, especially for the erection of homes of the laboring people has long been the practice and bids fair to assume an increasing role in the immediate future. The leaven is also working in this country as evidenced by the recent report of a bill drafted in Washington under the auspices of the Department of Labor for the formation of Federal Regional Banks to assist the Building and Loan Associations to borrow money at low interest rates.

The method upon which to model such a Federal Mortgage Bank is suggested by two great institutions, the Credit Foncier of France and the Federal Farm Loan system. It might be interesting to note by the way that a recent report states that the Federal Farm Loan Banks have received applications for over four hundred million dollars of loans and have actually made \$198,000,000 worth of loans.

For those who do not care to go into the financial detail it can be briefly stated that popular subscription is invited to bond sales by these great institutions. The bonds, being issued under Government auspices enjoy a free sale upon the exchanges, and can be floated at comparatively low rates of interest. This element of free negotiability which is lacking in the ordinary loan upon bond and mortgage on a specific piece of real estate removes the fear of the average

investor in being "locked up" in an investment for which there is no ready sale. The proceeds of the bond sales are loaned upon bond and mortgage at slightly higher rates of interest than are paid upon the bonds sold to the public. This difference in interest rate is sufficient to pay the costs of operation, returns upon capital invested in the bank stock and the creation of a surplus. All the loans are made for a long term of years and with requirements to pay off an installment of the principal each year. By broadening the market for investment the cost of the loans is reduced and by the annual installments a fund for re-investment is automatically created.

Loans could be made by re-discount or otherwise through existing agencies such as savings banks, building and loan societies and trust companies.

By fixing high standards of construction, light and air, room size, etc., in buildings upon which it makes loans the Federal Mortgage Bank could exert a powerful influence in improving the character of building.

It would of course not be contemplated that a Federal Mortgage Bank would make all the loans upon home building required in this country or that it supplant existing agencies. Such a bank would principally stabilize the market for mortgage loans and take the lead in putting such loans upon a sound financial basis. The Federal Mortgage banks would occupy a similar relation to the existing agencies for making loans on real estate that the Federal Reserve Banks do to the general banking community.

A detailed description follows of the principal features of the Credit Foncier, the Farm Loan system and a proposed Federal Mortgage Bank. The latter is not intended to be any more than suggestive and combines certain features of the other two which appear to be desirable.

CREDIT FONCIER OF FRANCE

The Credit Foncier was established in 1852 to reduce the high rates charged for loans on real property which at that time ran up as high as nine per cent.

By a decree of the tenth of December, 1852, the bank was authorized to absorb two other concerns and do a national business under the name of CREDIT FONCIER DE FRANCE, with a capital of sixty million francs (the government furnishing of this amount a subsidy of ten million francs) and authorization to loan two hundred million francs on mortgage at the rate of five per cent. This amount was to cover amortization, interest and cost of administration. Loans were to run for fifty years. This was found impracticable, so the bank was authorized to make

loans on a sliding scale with minimum net interest rate of three per cent.

On the 24th of June, 1854, the government reorganized the bank, appointing a governor and two sub-governors, as in the bank of France, and in addition placed the bank under the surveillance of the Ministers of the Interior, Agriculture, Commerce and Finance.

The governor and the two sub-governors represent the state, and in addition there is a board of administration amounting to twenty to twenty-three persons appointed by the stockholders. This board is appointed at a general meeting of the two hundred largest stockholders as determined twenty days before the meeting and the governor appoints all the agents of the funds throughout France and has power of vetoing action of the board.

The Credit Foncier makes short term loans with or without amortization, the minimum short term being ten years. It makes long term loans repayable by annuities. Sometimes the debtor to the bank on short term loans can at the end of one to five years change the short term loan into a long term one. The long term loans run from forty to seventy years.

Under the charter of the bank the law fixes the character of the loans, which are as follows:

1. Only upon first mortgage; no loans to be made on theatres, mines, quarries or similar property.
2. Only upon property producing a determinable revenue.
3. Only upon fifty per cent of the assessed value of the property, no value being placed on factories in determining this value.

In 1860 the bank was authorized to loan to municipalities with or without mortgage lien.

The Credit Foncier issues its own bonds from time to time as conditions in the bond market are favorable, and the purchaser of these bonds can pledge them for loans from the bank. They are also available for investment in trust funds. In addition to the property pledged to secure them they are guaranteed by the surplus of one hundred and seventy-five million francs and reserves amounting to one hundred and forty million francs. The bonds may be floated in excess of the amount of loans outstanding at favorable times in the money market, and such surplus may be invested in government securities. It is the duty of the governor to see to it that no excessive amount of bonds is issued. All bonds must be registered and no bond can be issued for less than one hundred francs. These bonds are retired as they mature yearly by lot drawings. Sometimes the bonds are issued with prizes. In addition to the securities outlined above, the law requires that the normal amount of the shares shall be maintained in the proportion of not less than one-twentieth of the amount of bonds issued.

FEDERAL FARM LOAN ACT, JULY 17, 1916

The Federal Farm Loan Board is a branch of the Treasury Department of the United States composed of four commissioners, and the Secretary of the Treasury. The Act authorized the formation of twelve Land Banks.

FEDERAL LAND BANKS are capitalized at \$750,000 each, \$250,000 of which must be kept as liquid assets. The Government subscribes for all unissued stock after the subscription books have been open for thirty days. The Government appoints a temporary board of five directors for each Land Bank. The Government receives no dividends upon its stock.

FARM LOAN ASSOCIATIONS are authorized to be formed by ten or more farmers in any district wishing to borrow money from the Land Bank. These associations are authorized to be incorporated under the Act upon the approval of their application for their loans by the Farm Loan Board. Each farmer is required to subscribe to five per cent of the amount of his loan in stock of the Association. A Farm Loan Association subscribes for stock in the Land Bank in the aggregate sum of the total subscriptions of its members. The shares are for \$5 each.

The loans of each Association must aggregate at least \$20,000. The loans must be for a term of not less than five years nor more than forty years, and re-payable in instalments. Each Farm Loan Association appoints a president, a vice-president and secretary-treasurer. The latter is a salaried man and handles all collections by the Association and remittances to and from the Land Bank.

All loans to the members of the Farm Loan Associations must be on first mortgage on an appraised value not to exceed fifty per cent of the value of the land and twenty per cent of the value of the improvements, which must be insured. The Land Bank re-appraises the value of the securities. The shares of stock of the Associations are part security for the loans to the members, but dividends upon this stock are payable to the owners of the stock. When any farmer pays off his loan, the amount of the par value of his stock is remitted to him. Each farmer is liable to his Association for twice the par value of his stock. The initial payment accounts for one-half of this liability.

When the aggregate subscriptions of the Farm Loan Associations in the Land Bank reach \$100,000 this stock is entitled to vote for six directors, the Farm Loan Board appointing three, making a total of nine directors. The Farm Loan Board appoints one of the Government directors as Chairman of the Board.

GENERAL RULES FOR MAKING LOANS

No loan shall be made with interest to exceed six per cent, exclusive of amortization. Each farmer

is required to pay every six months or year, an installment on his debt, which includes:

1. Interest.
2. A part of the principal.
3. A small sum to cover expenses and profits not exceeding one per cent of the unpaid principal of his loan.

After five years, additional sums in multiples of \$25 may be paid on account of the principal of any loans, but no loan to any one borrower shall exceed \$10,000 or be less than \$100.

The Farm Loan Act provides that only loans shall be made to natural persons — this excludes corporations. Torrens Titles or any other system of title registration adopted under State laws will be accepted by the Federal Land Banks. The Federal Loan Banks appoint Federal Loan registrars and appraisers for each Land Bank, who receive their salaries from the Government.

RETIREMENT OF GOVERNMENT SUBSCRIPTION

After the subscriptions of the Farm Loan Associations to any Land Bank reach \$750,000 the bank is required to pay off the original subscriptions in the amount of twenty-five per cent of new subscriptions received for stock. It is thus planned to retire the Government subscriptions. Of the quick assets held by the Federal Land Bank at least five per cent must be in Government Bonds.

The Federal Land Banks may charge reasonable fees for appraising, determination of title and recording fees. The Land Banks cannot loan except through the Farm Loan Associations, provided, however, that if after one year no associations are formed in certain districts, the Land Bank may loan to farmers through agents under the same terms as required in the case of Associations through agents. The agents must be duly incorporated banks, trust companies, mortgage companies or savings banks, chartered by the State and employed for the purpose. These agents may charge the actual expenses incurred in making these loans, and they are required to endorse the loans so as to become responsible therefor. If, at a later time, Farm Loan Associations are formed in any district, no further loans are to be made by agents.

JOINT STOCK LAND BANKS

The Federal Farm Loan Act authorizes the formation of JOINT STOCK LAND BANKS, subject to the same restrictions as the Federal Land Banks. The Government makes no subscription to the stock of these banks. Their bond issue is limited to fifteen times the amount of the capital and surplus. The minimum capital for such Joint Stock Land Banks is \$250,000. They are not allowed to charge a rate of interest exceeding by more than one per cent the rate of interest paid by them on their last bond issue.

GENERAL PROVISIONS REGARDING ISSUE OF BONDS

Each Federal Land Bank is required to apply to the Farm Loan Board for permission to issue bonds. They must show the Farm Loan Board that they hold first mortgage collateral security for not less than the amount of the bonds proposed to be issued. These first mortgages are assigned in trust to the Farm Loan registrar and he deposits them in a safe deposit vault and acts as trustee.

Substitution of preferred securities is allowed, either by cash or Government bonds. The Farm Loan Board is allowed to call on any Farm Loan Bank for additional security to protect its own bonds. Bonds are in coupon form and authorized to be issued in denominations of \$25, \$50, \$100, \$500 and \$1000 in series of not less than \$50,000 in amount. Each Land Bank is responsible for the liabilities of all the other banks, and in the event of the failure of one bank, the losses are prorated among the other banks. The Federal Farm Loan Bonds as issued are not taxable by any national, state, municipal or local authority whatever.

CREATION OF RESERVE FUND

All Land Banks, both Federal and Joint Stock, are required to carry a reserve from earnings of twenty per cent of outstanding capital, by carrying twenty-five per cent of the net earnings to reserve account. After reaching a twenty per cent reserve, two per cent of the net earnings is added to the reserve. Dividends may be declared after making proper reservations.

Farm Loan Associations are required to make a reservation of ten per cent of their net earnings until their reserve equals twenty per cent of their outstanding stock. Thereafter they are required to set aside two per cent of their net earnings to add to their reservations.

The Federal Farm Loan Bonds are lawful for the investment of trust funds, and may be accepted as security for public deposits. The Federal Reserve Banks are authorized to buy these bonds in the same manner that they may purchase other preferred bonds under the Federal Reserve Act.

The Federal Farm Loan Commissioners are authorized to examine state laws to determine whether the mortgages in such States are adequate security. They may call upon the Attorney General of the United States for advice and assistance. In the event that the laws of any State are not deemed adequate to protect mortgage securities, no loans will be made in such State until the mortgage laws are modified.

A fine of \$5000 or imprisonment for one year, or both, will be imposed as a penalty, upon any one wilfully over-valuing land for loan purposes. Fines are also imposed for improper fees paid to secure loans.

A PROPOSED FEDERAL MORTGAGE BANK

The following outline is intended to indicate a method of aiding home building through the use of Government credit, based on a combination of the preceding methods.

GOVERNING BOARD. A governor and three sub-governors are to be appointed by the president and paid by the Government. The Secretary of the Treasury, the four governors and twenty directors, elected by the shareholders, will form a Board of Directors. No city is to furnish more than one director. Four directors are to be elected each year for a five years' term.

OFFICES. The head office is to be in the Treasury Department at Washington, with branch offices where required.

CAPITAL. \$60,000,000 in shares having a par value of \$10 each are to be offered to the public for subscription. The Government is to take all stock not subscribed in thirty days. Capital is increased by requiring all borrowers to subscribe and pay for stock equal to five per cent of the amount of their loans, which stock is returned when the mortgages are paid off.

GENERAL RULES FOR MORTGAGE LOANS

1. No loans are to exceed fifty per cent of the appraised value of the property.
2. No loans are to be for a period of less than ten years nor more than thirty years.
3. All loans are to be amortized at a rate which will amortize the value of the improvements in thirty years exclusive of the value of the land.
4. All loans are to be first mortgages upon income producing property.
5. No loans are to be made on factories, hotels, churches, office buildings, mines or quarries.
6. The interest charge is not to exceed by more than one per cent the interest paid on the last issue of bonds made by the bank.
7. Registrars are to be appointed and paid by the Government to act as custodians and trustees of the first mortgages held as collateral for the issue of bonds.
8. The substitution by cash or approved mortgages is permitted.
9. No loans are to be made in any state where the mortgage laws are not adequate to protect the loans. Such laws to be passed upon by the officers of the bank with the advice of the Attorney General of the United States.
10. The outstanding bonds at any time shall not exceed twenty times the capital and surplus of the bank.
11. No issue of bonds shall be permitted in excess of the value of first mortgages owned by the bank,

except that at any time, in order to take advantage of favorable money market conditions, the bank may issue bonds not covered by mortgages to an amount not exceeding its capital and surplus. The proceeds of such bonds are to remain as cash or be invested in Government securities until converted into mortgage loans.

12. No loans shall be made in any one city to exceed one quarter of the outstanding bonds of the Federal Mortgage Bank.

13. Torrens titles or other titles acceptable under state laws will be accepted by the bank.

14. The borrower will be required to pay the cost of the appraisal, title search, recording and vending fees.

15. All property offered for loan shall be appraised by a board of three appraisers appointed by the bank in any district, said board of appraisers to be under bond to the bank and liable to fine and imprisonment for willful over-valuation. This appraisal is subject to review by the bank at the expense of the bank.

16. No loan or loans to any one borrower shall be in excess of \$1,000,000 or less than \$1000.

OTHER PROVISIONS

The Government owned stock shall not be entitled to dividends.

The stock of the bank shall carry a double liability.

A reserve fund shall be created out of earnings by appropriating twenty-five per cent of earnings to reserve until said reserve fund equals twenty per cent of the capital and thereafter by setting aside five per cent of earnings to reserve.

When the reserve fund reaches twenty per cent, twenty-five per cent of all stock subscriptions received thereafter shall be used to retire the original stock subscriptions of \$20,000,000, so that after a certain period of years the entire stock of the bank shall be owned by borrowers from the bank who will receive by way of dividends the equivalent of a rebate so that the loans will be procured at a minimum cost to them.

The governor, or in his absence the senior sub-governor, shall have, with the approval of the Secretary of the Treasury, the power to veto any act of the Board of Directors.

The bonds of the Federal Mortgage Bank shall be available for the investment of trust funds, for security for public deposits and may be purchased by Federal Reserve Banks.

The bonds of the Federal Mortgage Bank shall be free from all Federal, state and municipal taxes, except the Federal Income Tax, where they are exempt to the value of \$5000 in the hands of any one owner.

Buildings for the Commercial Farmer

WE publish below an interesting letter giving an honest expression of opinion relating to the architect and his service to the small farmer, together with a reply from the author of the articles on farm buildings appearing in our March and April issues. While the farm buildings illustrated in those articles are on private estates, the same principles of design hold good for the simplest structure of the small farmer. Architecture is not dependent on

expense or elaboration, it is achieved solely by good proportions and taste, which should not represent any added cost. The public has long entertained an erroneous conception of architecture, but, fortunately, today there is evident a more receptive spirit, and such frank discussions as follow will be distinctly valuable in establishing the common ground of understanding, needed to provide opportunities for improving our architecture and buildings generally.

THE EDITORS.

Editors, The Architectural Forum: My attention has been called to the article entitled "Buildings for the Modern Farm," written by Elisha Harris Janes and appearing in the March, 1919, issue of THE ARCHITECTURAL FORUM.

Mr. Janes has handled the subject in masterly style, but has made a few statements that are not quite applicable to middle western farm practice.

His article starts out with an apparently honest intention of solving the architectural problems of the small "dirt" farmer. Yet in his first paragraph he states "to prevent them from erecting uninteresting, ordinary, box-like barns . . . in order that *our* view of the farm buildings may be a pleasure."

If he is really sincere, let him undertake to convince the absentee landlord to build these structures of artistic merit, as the owner who tills his own farm has more than commonplace surroundings in eight of ten cases.

What is "*our*" view? Must the farmer who pays for the hard roads also furnish us with a made-to-order landscape as we roll along in our automobiles, while he toils to pay off the mortgage?

Mr. Janes speaks frequently of the effect of the returning soldier on the architecture of our farmsteads. He mentions the farmer's thoughts of Normandy as he views his silo. He may never have heard of Normandy and much less seen a silo if he had been there, since there is probably as much silo capacity in one good dairy county in the Central West as there is in the whole of France. Farmer boys returning from the front have noted the lack of silos and have generally commented on the crude buildings on the peasants' farms.

It is not necessary to copy the unsanitary farm buildings of the old world. Let us design something for ourselves and get away from the slavery of manual labor as practiced in Europe. Certainly we have talent enough to design something original.

Mr. Janes criticized the work of the agricultural colleges in their endeavor to improve farm conditions by saying that their work is not always in the best of taste. Probably not, if compared with the picturesque groups one may work out for a millionaire play farmer on Long Island or Lake Forest. Fortunately, the agricultural colleges do have courses aiming to improve the taste of the farm boys and usually the most discouraging thing the instructor has to face is the very fear that a good looking building will cost too much. The architect can lay the blame for this on his own shoulders for he has brought it about. The architect does not draw plans for real farm buildings because there is no money in it for him. The fees are too small for the work involved. He has worked on country places and so-called "farms" but never for the man in the dirt.

The work of the agricultural college man may not be in the best taste, but it is honest, workable and within the means of our real farmers. When the American Institute of Architects collaborates with the agricultural colleges, the rural economists and the real farmers, then and then only will the real farm building problem have its solution in sight. It will be necessary, not only to prepare plans, but to convince the farmer in terms of his own

commodities that a barn with a "lantern" that does not ventilate is more beautiful than one with a galvanized iron cupola that does.

Farm buildings have to be made a paying proposition. Extra sums spent in ornamentation or in nooks and crannies are overhead expenses that common farms cannot bear. The net income from the average farm is far below the earnings of the lowliest laborer in the city. Labor is scarce, in fact, on many farms the income of the hired laborer is greater than the labor wage of the owner or tenant as the case may be. How can he but erect a box-like barn? A cupola may add to the attractiveness of the barn, but it pays no dividends and may even be a source of loss by harboring sparrows and pigeons. Granted, that one should dwell in pleasant places with charming objects to "hold" one's taste, but how much taste will one hold if one's children have no shoes?

Perhaps these remarks apply only to our lowliest farming class, but are they not the ones we should go farthest to reach? They are not hopeless, any more than the cement or terra cotta catalogs. First educate them through the agricultural college to make a living, and then will be time to teach art. A kitchen sink will uplift the downtrodden peasant far more than the most beautiful building group.

Mr. Janes further states that the farm buildings are too scattered. This is based on sound economic and sanitary principles to some extent. The average farmer has no modern city fire department at his beck and call, and insurance rates are almost prohibitive on non-protected, connected farm buildings. In fact, insurance is refused by some of the farmers' mutual companies where certain features are connected.

Mr. Average Farmer cannot afford to wash, carry, bed and care for his cattle and swine as can the play-at-farming millionaire, hence he must have some of his sty's, manure pits and poultry houses far removed from his dwelling and his water supply. Careful planning, of course, is essential, but the agricultural college does very well indeed in this respect.

Mr. Janes speaks of the freedom the architect may enjoy while working from the formal to the wildest picturesque! He assumes any size for the barn which of course bears no relation to the number of acres tilled or the probable production of those acres. Again he speaks of the varied shapes for silos. The farmer can afford but one type of silo, viz., the cylindrical. It has been proved beyond peradventure that this form is the most economical from all standpoints and the farmer has accepted the type. It would take some very shrewd artist to convince him otherwise. One prominent architect (rural) in a recent book, states that the silo might well be made like a jug, without doors, so as to be less wasteful of silage, the silage being raised over the top by a bucket (picturesque sweep was not specified). This man had evidently never fed forty hungry cows twice a day for two hundred very busy, consecutive days. Yet this stuff is offered in good faith to the public as the work of a famous architect. Is it any wonder that the farmer reads, smiles, and gets his plumber-architect-mason to plan and build his structures? Verily the

education must begin at the top and work down. Why does the New York or Boston architect worry about the structures at Eaton, Ohio or Roscoe, Illinois? They certainly ask no agricultural advice from these farming centers. Why should these happy and prosperous farmers go to New York for architectural advice?

Mr. Janes has chosen some rather happy examples in the groups for Jacob Schiff, Esq., and Otto H. Kahn, Esq., to illustrate moderately priced buildings. These buildings could very probably be built by the average two hundred acre farm owner, so far as cost is concerned.

The cost of such buildings as those in the groups for Robert S. Brewster and Major Fahnstock are out of the reach of the average farmer. In no case is an actual workable ventilator shown.

The groups illustrating the work of Alfred Hopkins, while not connected directly with the article, are very beautiful to look upon, but with one exception are entirely beyond any but the most wealthy. The same may be said of the groups by Mr. Janes.

When we educate we must go by degrees. If the light be too bright, those to whom we would appeal will either retire to the outskirts of the lighted area or will plunge like moths into the flame. Either is failure.

FREDERICK W. IVES,

Secretary American Society of Agricultural Engineers.

April 15, 1919.

Editors, The Architectural Forum: It is a very good thing to have honest criticism like Mr. Ives' brought forth by any article, for we are all striving for the same end, though some are more optimistic than others as to what results may be obtained. Unfortunately, his reading of the article has been with a view, perhaps a little too narrow to grasp all its meanings. The best way to answer his communication, it seems, is to consider each point as he has raised it, although the article itself answers almost every one of them.

If one reads the whole first paragraph, can any other interpretation be placed on the word "our" than the "farmers' neighbors" and they are the ones who will principally benefit by attractive farms and landscapes.

It is not necessary to make studious copies of the impressions received from foreign buildings, but the lines of some of the pigeon cotes, towers, windmills, etc., of Brittany might well give suggestions for the massing at least, if not in detail, of a silo. Undoubtedly a silo should be cylindrical, but they may vary some in proportion, material and location without changing the cost or their practicability. Neither is it any more necessary to condemn the charm of many of the foreign farm buildings because some of the arrangements are impractical and unsanitary, than it is to condemn Italian domestic architecture because the houses did not have bathrooms. Our early fathers often built farm groups which were a delight to view, and even in the far western state of Oregon, you will find some charming farm groups built by the emigrants from the South to Missouri, thence West. To these the modern practical points of convenience could easily be added.

Many of the agricultural colleges are working very hard trying

to influence the improvement of the farms, and some very successfully, but a few have not as yet reached beyond the practical side; some cannot afford the proper talent and others are unfortunate in their selection of advisors, but that does not mean that they are all criticized. Even the government has not done as well as it might have in the many specimen designs it sends out for farm buildings.

The next criticism hardly needs to be answered; it should not be necessary to explain that expensive materials are not a requisite to good design, which fact is illustrated in the groups of buildings for Jacob H. Schiff, Esq., Otto H. Kahn, Esq., and Effingham Lawrence, Esq. Massing and proportion are the most important considerations. The "ornamentations, nooks and crannies" are the things generally applied by the "plumber-mason-architects."

Of course we should go farthest to reach the lowliest class, but because a man cannot afford Sunday clothes that does not mean he should not try at least to clean his work clothes before he goes to church; and no farmer is so poor but what he could strive with proper advice to better his farm, if only to "tidy his place," and when his more successful neighbor's place is improved, he will have the incentive, as his own farm then increases in value by virtue of his neighbor's effort.

If the insurance item is so great, is it not better for the farmer to be shown that the small additional cost of fire-proofing over the present price of wood construction is soon made up in the saving of insurance, upkeep, labor, etc.?

In stating that the farmer is obliged to locate his sties and poultry houses at distant points because of his inability to care for them sufficiently to insure cleanliness, he overlooks the fact that the cost of labor in washing, bedding, and other care of cattle and swine is more than offset by the greater production enjoyed.

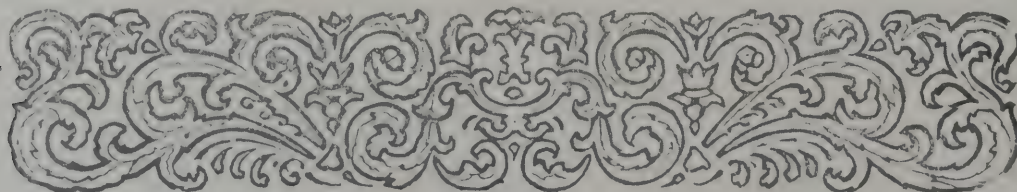
The conscientious Eastern architect "worries" about the structures in Ohio and Illinois, because he is anxious to find the best solutions of farm problems, and much of the literature from many of the state agricultural departments is studied by him in order to provide the current thought from different sections of the country.

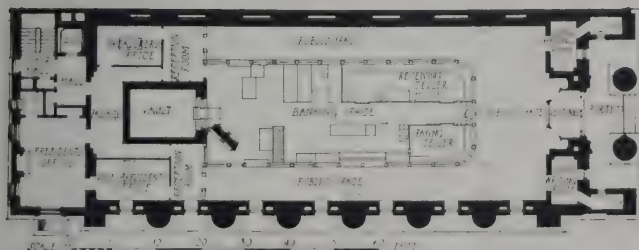
Mr. Ives is right when he asks that architects collaborate with the agricultural colleges and rural economists for the solution, but the true architect will not have to convince the farmer to use unnecessary and impracticable things, for he will not try to use them. From the letters which appeared recently in one of your contemporary magazines the movement for collaboration in the improvement of farm buildings is being welcomed by most of the agricultural institutions, and the same influence for better designs will work as did it in the great movement for better homes, but it will of necessity be a slow development.

We cannot expect the farmer to destroy what he has built just because it is unattractive. The great influences will be the extension work by the agricultural colleges and state commissions with the assistance from the Post-War Committee on Architectural Practice, and the continued building of "gentlemen" farms on simple lines and the gradual education of the farmer to realize that good, well designed buildings are a great influence towards making life on the farm more attractive.

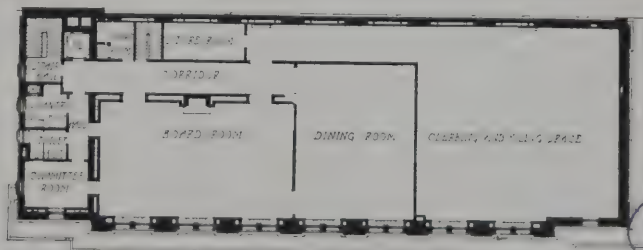
ELISHA HARRIS JANES.

April 24, 1919.





FIRST FLOOR PLAN



SECOND FLOOR PLAN

BENEFICIAL SAVING FUND SOCIETY BUILDING, PHILADELPHIA, PA.
HORACE TRUMBAUER, ARCHITECT





GENERAL VIEW OF BANKING ROOM FROM ENTRANCE

BENEFICIAL SAVING FUND SOCIETY BUILDING, PHILADELPHIA, PA.

HORACE TRUMBAUER, ARCHITECT



VIEW OF TERRACE SIDE
HOUSE AT WATERBURY, CONNECTICUT
MURPHY & DANA, ARCHITECTS



DETAIL OF LIVING ROOM DOORWAY TO TERRACE
HOUSE AT WATERBURY, CONNECTICUT
MURPHY & DANA, ARCHITECTS



VIEW OF END TOWARD STREET



VIEW LOOKING INTO DRYING GREEN

HOUSE AT WATERBURY, CONNECTICUT
MURPHY & DANA, ARCHITECTS



DETAIL OF MAIN ENTRANCE

HOUSE AT WATERBURY, CONNECTICUT

MURPHY & DANA, ARCHITECTS



VIEW OF FIREPLACE END OF LIVING ROOM



VIEW OF STAIR HALL
HOUSE AT WATERBURY, CONNECTICUT
MURPHY & DANA, ARCHITECTS



VIEW OF SIDE TOWARD LONG ISLAND SOUND
HOUSE AT WHITEWOOD, LLOYD NECK, LONG ISLAND, N. Y.
MURPHY & DANA, ARCHITECTS



VIEW OF DINING ROOM LOOKING TOWARD BREAKFAST ROOM



VIEW OF MAIN HALL

HOUSE OF MRS. W. M. RITTER, MANCHESTER, VERMONT
MURPHY & DANA, ARCHITECTS



DETAIL OF MAIN ENTRANCE

HOUSE AT WHITEWOOD, LLOYD NECK, LONG ISLAND, N. Y.

MURPHY & DANA, ARCHITECTS



VIEW OF ENTRANCE SIDE SHOWING SERVICE WING
HOUSE OF PROF. F. W. WILLIAMS, NEW HAVEN, CONNECTICUT
MURPHY & DANA, ARCHITECTS



DETAIL OF ENTRANCE FRONT

HOUSE OF PROF. F. W. WILLIAMS, NEW HAVEN, CONNECTICUT
MURPHY & DANA, ARCHITECTS



VIEW OF GARDEN FRONT
HOUSE OF PROF. F. W. WILLIAMS, NEW HAVEN, CONNECTICUT
MURPHY & DANA, ARCHITECTS



GENERAL VIEW OF TERRACE AND SOUTH SIDE
HOUSE OF MRS. W. M. RITTER, MANCHESTER, VERMONT
MURPHY & DANA, ARCHITECTS



GENERAL VIEW OF ENTRANCE FRONT
HOUSE OF MRS. W. M. RITTER, MANCHESTER, VERMONT
MURPHY & DANA, ARCHITECTS



VIEW OF DINING ROOM LOOKING TOWARD BREAKFAST ROOM



VIEW OF MAIN HALL

HOUSE OF MRS. W. M. RITTER, MANCHESTER, VERMONT

MURPHY & DANA, ARCHITECTS

Recent Country Houses from the Designs of Murphy & Dana, Architects

THE four houses illustrated in this issue from the designs of Murphy & Dana, architects, are of special interest for their pleasing use of forms adapted from Colonial and Georgian precedents and for the simple principles underlying their plans.

The house of Mrs. W. M. Ritter at Manchester, Vermont (Plates 78-80), is situated on the east slope of Equinox Mountain, with a commanding prospect of the Battenkill Valley and the villages of Manchester.

The spirit of the design is Colonial, but the details have been developed with simple conventional forms carefully refined. The broad clapboards and the length of the house express a comfortable farmhouse quality.

The large rooms and easy circulation provide for abundant social activities and generous hospitality. The secondary stairs for family use have proved a great convenience, and the guest's bedroom on the first floor with direct access to the grounds has unique advantages. The interiors are intended to be simple settings for Mrs. Ritter's remarkable collection of early American furniture, china, glass and lamps.

This is a heavily studded frame house, with the equipment and finish modified to be consistent with a house used only a portion of the year. The heating for spring or fall is accomplished by warm air furnaces.

The house was completed in the summer of 1918, and cost thirty-four cents a cubic foot.

The house at Waterbury, Connecticut, (Plates

67-71), is located on a narrow plot adjoining a private park between which there is no emphasized division, permitting all the advantages of a more extended plot to be enjoyed with the minimum of maintenance.

The house is of dignified English Georgian influence with variegated brown and red brick walls, white painted wood trim, and bandcourse and chimney trimmings of white marble. The roof is slate in graduated lengths and of dark green and black shades to enhance the warmth and color of the brickwork. The combination is effective in its setting of stately elms and maples which completely embower the house.

In order that all the rooms should have southern exposure and get the view of the private park, the long way of the house is run east and west, and the narrow end faced toward the street. In other words, the house is only one room deep, with the north side taken up with halls, stairs, closets and minor rooms.

The house is unique in that there are no intercommunicating rooms, circulation being confined entirely to the hallways. Complete privacy is secured in every room, as each has but one entrance doorway, and therefore, occupants of one room need not be disturbed by the occupants of an adjoining room.

No wallpapers whatever have been used, but all the principal rooms and bedrooms, except the living room, are paneled and enameled. The living room is paneled in birch and finished in a soft pale brown stain. All interior finish is of a superior character.



View toward Battenkill Valley, House of Mrs. W. M. Ritter, Manchester, Vermont



ENTRANCE DETAIL, HOUSE OF MRS. W. M. RITTER, MANCHESTER, VT.
MURPHY & DANA, ARCHITECTS

The house was completed in the spring of 1918 and cost about fifty-seven cents a cubic foot.

The house of Prof. F. W. Williams at New Haven, Connecticut (Plates 75-77), is situated on one of the main thoroughfares in a grove of imposing oak and elm trees. The house is located with reference to the most important trees and views, set far back from the street for quietness and also to maintain the old-fashioned driveway approach, common to the old houses adjoining.

The house is of modified Georgian design with variegated red brick walls and mottled green and purple slate roof and white trimmings.

The main rooms face the garden front on the east and the street front is taken up by halls, stairs, kitchen, etc., as this is the least desirable exposure. The arrangement of the hall, reception room and dining room lends itself very readily to entertaining, while, at the same time, the working library and office are sufficiently retired from these apartments and yet have direct access to the hall. The second floor is compact and conforms perfectly to the owner's

the winter requirements.

The house is located on the shore of Long Island Sound on a promontory about sixty feet above the beach, where it gets extensive views and cooling breezes during the summer. The chief rooms in the house are arranged in relation to these views and breezes. At either end of the water front of the house are spacious covered piazzas, so arranged, however, that they do not cut off the sunlight from the rooms in the winter months. In order to relate the house to the grounds and make access from every

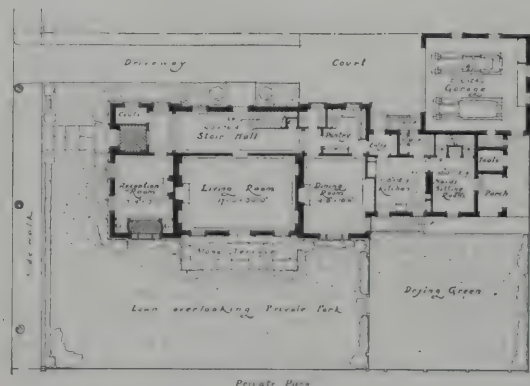
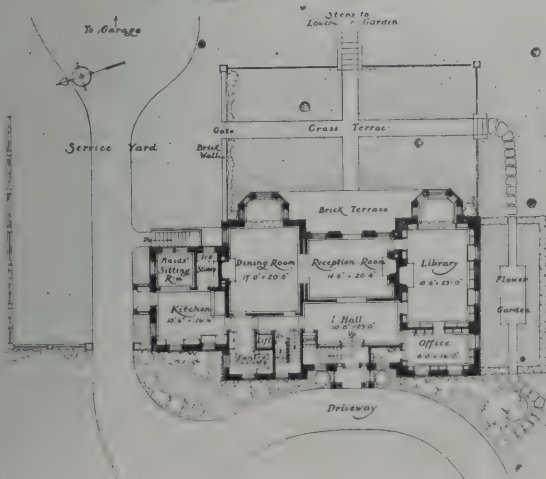
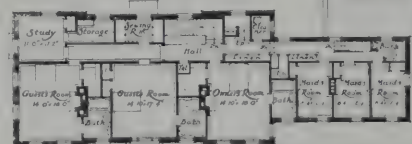
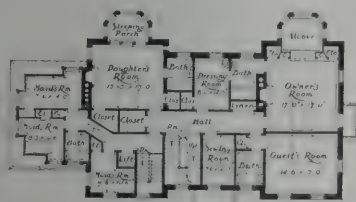


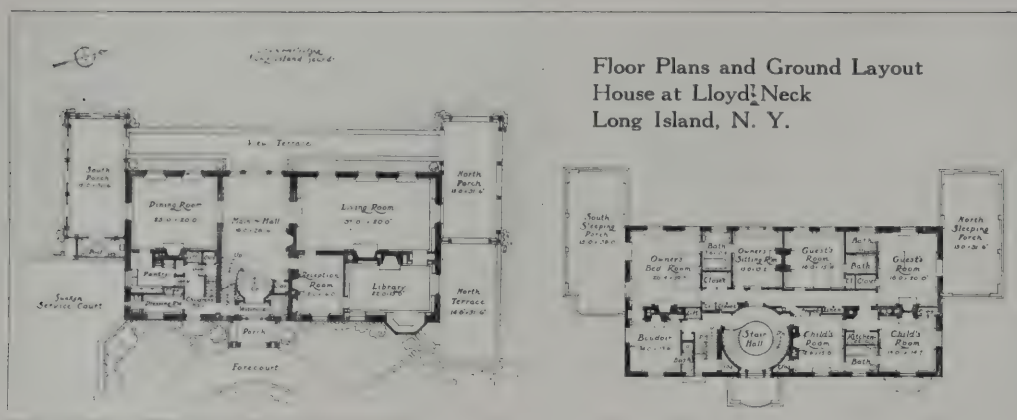
Floor Plans and Ground Layout
House of Mrs. W. M. Ritter, Manchester, Vt.



At Left, Floor Plans and Ground Layout
House of Prof. F. W. Williams, New
Haven, Conn.

At Right, Floor Plans and Ground Layout
House at Waterbury, Connecticut





family life, with a playroom and large schoolroom in the attic for the children. It is also designed, however, for the accommodation of week-end parties, the bedrooms arranged so that there can be four guests' rooms, if needed.

room to the outdoors unusually easy, there are French doors to the floor, opening out onto terraces, and on the second floor onto the decks over the piazzas.

The winter requirements are met by having an open fireplace in every room, even the smallest bedrooms. The house is heated by indirect hot water radiation, controlled by thermostats in each room. The entire structure, floors and roof, is of heavy masonry fireproof construction, which seemed advisable, owing to the remoteness of the house, and the valuable family portraits and furniture that are installed in it. The equipment and finish throughout are of superior quality.

The house is furthermore designed for double use. Primarily it is arranged for domestic privacy and

of the house is located in the basement, where it is out of the way and connects with the sunken service court. This has the advantage of leaving the views in all directions from the first floor without the obstruction of any service yard.

The general style of the exterior is Colonial, kept informal, unsymmetrical and free, as suited to the site. According to the owner's wishes the house was made especially simple and modest, as a protest against the ostentatious show-places. The brick walls have a wide range of plum and red colors, and the black and green slate roof makes these warm tones more pronounced.

The house was finished in the autumn of 1916 and cost sixty-one cents a cubic foot.



Entrance Hall and Stairway, House at Whitewood, Lloyd Neck, Long Island, N. Y.

The Architect of the Future

PART IV. AN ADVERTISING POLICY FOR THE ARCHITECT

By C. STANLEY TAYLOR

THE widespread reaction in the architectural profession, which is voicing an ever growing demand for the re-establishment of the profession upon a sounder business basis, has resulted in many interesting and constructive contributions from those who realize that collective benefit invariably has individual application. In practically every discussion of the post-war problems of the architect, the subject of advertising plays an important though not extensive part. The opinion more generally expressed is that the architect should advertise and advertise in a manner which will not detract from his professional standing, but will rather increase the stability and emphasize the importance of his services. How this may be done is, however, usually left to the imagination of the auditor or reader. It is the purpose of this article, therefore, to meet the issue squarely and to analyze in a casual manner the subject of architectural advertising in order to provide at least a basis of thought and discussion.

This question naturally forms two divisions for consideration: first, its application to the profession; and, second, its application to the individual—in other words, collective and individual advertising. The first phase, that of group or collective advertising, is perhaps the more interesting at this time particularly in view of the facts that the question of architectural advertising has only recently been given any general consideration, and that there undoubtedly exists in the mind of the building public, the potential clientele of the architect, a surprising vagueness of conception as to the extent and value of the architect's service. Perhaps, too, there is vagueness in the mind of the average architect as to the scope and application of his service to the client. If this be so, collective advertising, which can be made a powerful adjunct in the rapid increase of general public knowledge and appreciation of any professional service, will exercise a dual benefit through the stimulation of introspection on the part of the architect.

In order to advertise we must know exactly what we have to sell and where the market is. Then we must constantly better the product or service in order that it may find continued public favor. This is exactly the stimulation which the profession needs today.

In a consideration of the subject of collective architectural advertising, the important factors would seem to be:

- (1) What direct benefits may be expected?
- (2) What architectural groups should advertise?
- (3) What general publicity program should be carried out?

- (4) How shall such advertising be paid for?

Aside from the benefits of collective advertising already enumerated it is fair to expect that a well calculated publicity campaign if consistently carried out will have the following beneficial results:

- (1) Increase of volume of business.
- (2) Protection of the legitimate professional field against encroachment.
- (3) Minimizing the harmful activities of inefficient or unscrupulous practitioners.
- (4) Increase in popular appreciation of artistic and harmonious building and landscape design.
- (5) Extension of architectural services to cover many important and logical activities in the building field.
- (6) Elimination of much bad practice and waste effort in general building construction.
- (7) The establishment of a keener public interest in more efficient housing for industrial, commercial and social activities.

Many of the above-enumerated points are self-explanatory and need no enlargement. It is certain that the investor in buildings of any nature would benefit by the service of an architect trained not only in design which embraces at once features of economy and æsthetic value; but in the economics of design (the business features, if they may be so termed) which determine the efficiency of purpose in any building.

As we analyze our cities today we find millions of dollars in unsound building investments; vast residential areas of unattractiveness, varying from actual slums of the tenement districts to the potential slums of monotonous speculation. On every hand we find a wasted dollar for every dollar spent in sound investment. We find waste in the planning of our cities; waste in the planning of our hotels and office buildings; waste space in our homes—a vast volume of blind, undirected investment in building which has a direct and ramified influence on social and economic conditions. This is the responsibility of the architect, if he is to assume his rightful position in the economic field, and here are indicated in a cumulative manner the results to be expected from collective advertising. A semi-proverbial expression often heard is that "familiarity breeds contempt." This is true only in cases of inherent or disguised weakness. In the case of the architect the proverb is reversed. There is no inherent weakness in the profession and there should be no disguised weakness. If the architect will maintain his professional activities on a basis of real and constructive service, familiarity, or in this case, popular understanding, will breed respect and confidence

which will be of untold value in the years to come.

There is no lack of supporting evidence of the value of collective advertising, industrial or professional. It is the order of the day. Turning the pages of widely circulated popular publications, or those of specialized circulation, we find dignified collective advertising of the advertising profession itself—surely no better criterion of the value of professional advertising could exist than this plainly expressed opinion of trained advertising experts. We are all familiar with the valuable results which have been obtained through collective publicity on the part of manufacturers of building materials. Cypress, white pine, Portland cement, face brick, hollow tile and many other basic materials have found public favor through presentation to the public of the merits of the material, submerging for the general good the direct publicity interest of the individual concerns producing the material.

What is more logical, then, than that the public should be made more familiar with the *modus operandi* of the profession through which these materials are combined into an harmonious and efficient unit of economic service—be it home or hotel, factory or office building?

The next subject for consideration is that of the medium through which collective publicity may be carried out. It would seem that the presentation to the American public of the functions and responsibilities of the architect could be made in no more logical or dignified manner than under the direction of the American Institute of Architects. Already the Institute is giving consideration to the post-war problems of the architect. It is suggested, therefore, that through the Institute and its various active chapters an educational propaganda may be directed, tending to clarify and stabilize the position of the architect and the public service which he may render. It must also not be forgotten that preparation for the placing of material before the building and general public will also serve to clarify and establish a new code of ethics (or, one might better say, a modernized code of ethics) which will make it possible for the architect to enlarge the scope of his active service to meet the demands of building and investment progress without a sense of dereliction in so far as ethical considerations may be involved.

Any code of professional ethics in the adherence to which there must be sacrificed a single element of true service to the client is subject to immediate revision. Professional ethics should coherently define and indicate true service and should allow sufficient latitude and flexibility to comprehend a changing economic demand.

Regarding the general publicity program which should be carried out by the architectural profession, the details must depend upon the scope of activities which it may be decided lie within its legitimate field.

The American public is today interested in knowing exactly what contribution the architect can make in any building project. Granting his artistic ability, how far, if at all, can his advice be taken as to the economic features? Does he really know or even pretend to know how to design an investment building so it will be a financial success? If, owing to poor location or other contingencies, a building cannot well be expected to pay—will the architect advise against it? What does the architect know of quantity survey and the material market? Is he equipped with skill and knowledge which will result in financial saving or increased efficiency of purpose? Can he be called to advise on building problems even as the attorney or physician is called on problems peculiar to the individual profession?

These, and a thousand similar questions, the American public asks today, either directly or subconsciously. Here, then, is the answer to the question regarding the general publicity program which should be undertaken.

Detailed consideration of a collective publicity program is at this time prohibited because of the restrictions of time and space. In general, however, such publicity should not be limited to, or dominated by, æsthetics. As an artist the public already knows the architect — as a business man he is a stranger. A series of collective architectural advertisements would not, therefore, portray some of the beautiful modern examples of architecture but should rather dwell upon the economic success of various building ventures where design has perforce played an important contributory part. In this presentation comparison would probably prove a valuable factor. For instance, to the building public there might be shown the plan of a speculatively constructed apartment house, built with practically no architectural service; and that of a building of equal cost in which better planning provides more liveable and serviceable homes with a consequently greater income on the investment. In like manner comparisons could be made in all the fields of industrial and commercial design.

Another interesting and instructive architectural advertising series might present the various phases of a well studied architectural project. The general public little knows the amount of careful thought and study, the wealth of detail work put on a building in the office of a thoroughly equipped architect. Such knowledge, if generally disseminated, would have stabilizing and constructive value.

It must be realized that the keynote, the very touchstone of architectural advertising should be service — not beauty. We must give to the public practical facts regarding the profession, educational data which will prove in a most practical manner the need for and value of the architect's work. The prospective builder must be shown not only how he

can recoup his investment in architectural fees; but how such investment shall prove to possess earning power.

The question of paying for collective advertising and maintaining a publicity organization should be the most simple of these problems. Collective publicity in practically every activity is paid for in accordance with the annual volume of business, on a pro rata basis. It would seem quite logical to apply the same method of calculation in this case. National and local campaigns could be carried on by the national or local organizations in accordance with prescribed methods and limitations. Again, advertising of specialized phases of design might be carried out by groups of architects particularly experienced in such work and under mutual territorial agreement. Thus, by groups, hotel, theatre, industrial housing or other specialized architectural services could be accentuated.

* * * *

The question of advertising by the individual architect is more difficult to approach at this time. The problem is again that of text and media, approached from the individual viewpoint.

The first consideration in all individual architectural advertising should be that of maintaining at its highest point professional standing by the use of dignified and direct statements of fact. Flamboyant verbiage and the ordinary catch-phrase type of advertising should be avoided — prolixity is unnecessary — I think it was Gerald Stanley Lee who said in an excellent treatise on advertising that a good salesman could carry his message to the public in one hundred well chosen words, if he had something real to sell. Illustrations invariably tell a story better than a volume of words, particularly in the business and profession of architecture where past history is present recommendation.

In the selection of media for carrying the architect's message to the public the utmost care should be exercised. The publications selected should be of character and standing in their respective fields and may consist of both class and popular journals. In every case a selection of a medium should be through a process of elimination — not to gain the greatest circulation, but to achieve presentation in the most favorable light to the greatest number of really interested persons. For instance, in the advertising of automobiles more money is spent in popular magazines than in automobile trade and class papers. So the advertising of an architect who specializes in designing expensive homes would probably bring better results if placed in a high-

class literary or popular magazine than in a publication devoted particularly to building and circulating in definite channels.

In further consideration of the subject of individual advertising a market analysis is indispensable. In the first place an architect must determine the fields of greatest demand in the territory which he wishes to cover. He must then determine the class of active work for which he is best fitted. For instance, in the Northeastern States today there stands out above the general demand for buildings a special need for individual and apartment houses, office buildings and bank buildings, also buildings of public and semi-public nature, institutional and educational. The average architect is not fitted either by experience or reputation to handle all these types of buildings. He will, therefore, choose the types which he may best handle and advertise within the limitations of these particular fields if he wishes to obtain direct and definite results through such expenditure. Thus market conditions together with the factor of individual service equipment will control the selection of advertising media.

In general consideration of the question of architectural advertising, its limitations and possibilities, we enter the "no man's land" of a professional reconstruction period. With perhaps unnecessary emphasis attention is again directed to the need of establishing clearly the general functions of an architect's service to the public. It is clear then that there are several steps to be taken before entering collectively or even individually into a studied program of public education along these lines. To best accomplish definite results the partly selfish viewpoint which is predetermined by an unchanging code of professional ethics should be for a time replaced by frank and free discussion throughout the profession. Nor should this discussion be limited to a recital of the trials and tribulations of architects during the rapidly shifting economic phases of the last few years. The consideration of this question should rather be confined to a determination of the real needs of the building public from the financial, æsthetic and efficiency viewpoints. When these have been determined let us learn what contribution toward the protection of building investments an architect is equipped and fitted to make. From the results of such consideration the scope of a revised code of ethics may be determined. Upon the service foundation thus created may be based a national program of publicity calculated to bring before the building public information as to the definite value of architectural service in any building operation.



VIEW OF DECORATIVE PAINTINGS IN CENTER OF COURT



STAGE AT FIFTIETH STREET END OF COURT
 "VICTORY WAY," PARK AVENUE, NEW YORK CITY
 H. VAN BUREN MAGONIGLE, ARCHITECT

"Victory Way" New York Street Decorations for Victory Loan Drive

H. VAN BUREN MAGONIGLE, ARCHITECT

THE return of our troops from abroad, the campaign for popular subscription of Government bonds, support of the Red Cross and other allied war activities have given architects exceptional and numerous opportunities for the application of architectural design to street decoration in our larger centers.

In New York City within two months, two occasions have been made impressive to the city's guests and inhabitants by well conceived and executed schemes of decoration, the first in connection with the parade of the 27th Division of the Army, composed largely of men from the State of New York, and the second, the decorative court for the centralization of activities in behalf of the Victory Liberty Loan.

The latter is shown in detail by the accompanying illustrations, which convey an impression of the scale in which the work was carried out and its effectiveness, both from the standpoint of good street decoration and the compelling of interest through an appeal to the sight. The conception and architectural design of this court are the work of H. Van Buren Magonigle, architect, collaborating with the Advisory Art Committee to the Liberty Loan Committee.

The area selected for the location of the court is fortunately a wide avenue with two roadways and a paved space between them. This section extends



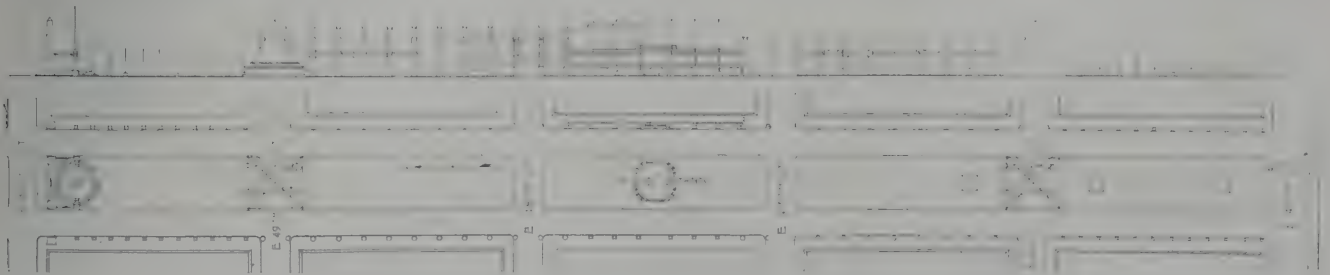
Detail View Showing German Helmet Pyramid
Through Colonnade

north of the Grand Central Terminal and was made possible a few years ago by the extensive improvements made in the neighborhood of the terminal. It is, therefore, capable of providing the necessary area for large gatherings of people, and the great width of the thoroughfare, together with open areas adjacent, made possible the use of large scaled and imposing colonnades forming a court without creating the crowded appearance which so frequently results from efforts toward street decoration. The court extends on Park Avenue a distance of five blocks, or from Forty-fifth Street to Fiftieth Street, the

two central cross streets being closed to traffic to lessen interruption of activities taking place within.

On the axes of Forty-sixth and Forty-ninth Streets, in the center of the avenue are two great pyramids covered with captured German helmets and surmounted by gilded figures of Victory. The bases of the pyramids are decorated with ropes of laurel and further interest is given by captured machine guns arranged in groups near by.

The center of the block between Forty-seventh and Forty-eighth Streets is occupied by the speaker's stand, made large enough also to accommodate a band of seventy pieces. On the east side of the avenue at this point is a large apartment hotel, and in order to balance this on the west side, which is



Plan and Elevation, Park Avenue Decorations from Fiftieth to Forty-fifth Streets

open, and introduce variety a high wall has been erected, surmounted by a decorative grouping of standards and pennants, the wall itself being divided into panels, each of which contains a colorful mural painting depicting the various agencies leading to Victory and the Arts of Peace.

At Fiftieth Street, facing south, is a monumental stage, the northerly face of which forms the feature of the north gateway to the court. This consists of four obelisks marking the roadways, and between the center ones a curved row of clipped evergreen trees provides an effective background for the stage. The dominating feature of the group is a decorative flag-pole with an imposing base resting on the raised platform. The space fronting this stage is kept clear for gatherings of people, but the remainder of the area is given special points of interest by the exhibition of captured military equipment.

The court is brought into a single harmonious composition by the large scaled Greek Doric colonnade at either side of the avenue. Each of the columns supports an eagle resting on a ball, and large garlands of laurel tie the columns together for daylight effect and at night festoons of colored electric lights serve a similar purpose. Flags of the Allies, State banners

and insignia of the various divisions of the army are suspended between the columns, and the bright colors of these banners, constantly in motion, create an effect of festivity appropriate to the occasion.

The decoration is successful because of its simplicity, both in color and form, and the large scale of its component parts, which makes them take a dominating position, even when seen against a large building. In color, cream white predominates, this being the tone of the architectural features, with the exception of the mural frame, which is dark buff with stenciled decorations in gold. Bright colors are introduced by the banners and flags and though of many different shades, seen in conjunction with large areas of white and the green of the laurel, there are no unpleasant color contrasts. The laurel garlands conform in scale with the other parts of the design, being built around substantial wire frames and covered at their points of support by colored shields.

"Victory Way," as the court is called, is indicative of the distinct advance we have achieved in street decoration in recent years and, furthermore, provides proof of the great value of unified control in the direction of public efforts to lend impressiveness to important occasions by means of decoration.



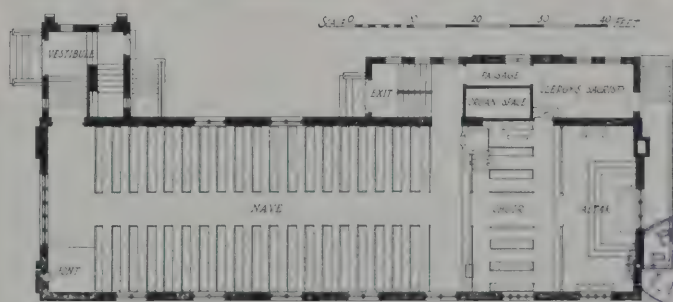
General View of "Victory Way" Looking North on Park Avenue

St. Andrew's Episcopal Church, Cleveland, Ohio

CHARLES S. SCHNEIDER, ARCHITECT



Basement Floor Plan



First Floor Plan

EDITORIAL COMMENT

NEVER were we in greater need of clear, straight thinking than today. Months have passed since the signing of the armistice and still, in spite of the rigid way in which prices have held in the face of greatly restricted buying, there are many who are holding back action on construction projects that are badly needed, with the thought that material prices are coming down to the same or nearly the same level as existed before the war.

We are, on the contrary, on a higher price level and all indications point to a continuance of that level for a long period into the future. We are, therefore, only piling up losses by waiting for different conditions. Demand for structures of all kinds is insistent on every hand and every day's delay in meeting that demand increases the toll of revenue that is being lost. It is variously estimated that the country is from six hundred thousand to one million dwellings short of the accommodations necessary to house its people properly. In the face of such overwhelming demand, it is difficult to reconcile the present inactivity. Labor is available, material is abundant, money can be procured, but the overbalancing negative factor seems to be a false conception of present economic conditions.

It is generally agreed that the working and living conditions of American labor will steadily improve in the years to follow the war, and it is evident that better living conditions cannot be brought about by lower wages. If the laborer is to enjoy a better home, be able to give his children educational advantages and himself necessary recreation, he must receive a wage commensurate with such obligations. Since labor is the chief item of cost in all commodities and manufactured articles, the prices of such commodities and the general scale of living costs as well, will be maintained in relatively the same proportion to the wage standard existing today.

It has been recently reported that the President upon his return from France will take some important steps toward the alleviation of industrial unrest that exists in some sections of the country. One of these steps is considered to be the continuation of the War Labor Board through the readjustment period with full war authority, as a final court of appeal in industrial disputes. Another is the issuance of a call for an industrial conference that will prepare a program for governing American industrial life. Looking back over the decisions which have been made with respect to labor conditions since our entry into the war, it is not unreasonable to anticipate that further governmental aid in industrial affairs will not lower the prevailing wage standards. The general tendency is toward increased costs but if such a proposed conference for reaching an equitable labor program succeeds in bringing about stabilization of wages, and material prices, its existence will be welcomed,

whatever the price level determined proves to be.

Evidence of the wrong attitude that may easily be taken toward present conditions is seen in the agitation in the State of New York to secure the passage of legislation that will restrict the profits landlords may derive from the rental of apartment and tenement house property.

There is no denying that a serious condition confronts the city of New York owing to the lack of living places for people of moderate income, and that many unscrupulous landlords have taken full advantage of the situation of which they find themselves in control, but restrictive legislation will not provide one more apartment to afford relief; it will on the other hand only serve to prevent the erection of whatever number the present high rents might make attractive to investors. The situation can only be constructively remedied by the erection of new buildings, following which the law of supply and demand will automatically improve conditions.

The need calls for action on the part of men capable of leading a wide movement for the betterment of existing conditions. Building costs are not so high that the present rental returns will not provide sufficient funds to make reserves to take care of any fall in values that may come within the next ten years. The drop in values may never come and in any case it is in the distant future. We have passed through two years in which practically no building was done, it will require two years to make up the deficiency and even with that done we will still be two years behind, for our normal population increase of each year must be provided for. We should, therefore, construct at the rate of four years' supply in the space of two, if we are to restore conditions to normal. This rate of construction will not be possible, for once confidence in the future is had, so much other work requiring materials must be carried on that supplies would not be available.

An important element in the construction of houses that must be given special consideration is the financial aspect. The greater part of housing accommodations in the past have been provided by the speculative builder, who has operated on small capital and worked under many handicaps. Though he has been roundly criticized for his many faults, he has been of real aid, for he is today the man largely responsible for providing most of the houses we now have. The present need, however, cannot be met with those same methods. More capital on longer loans and at lower rates of interest must be made available for the homes of the working population. Recent significant developments in the banking field and the movement for the organization of a Federal Home Loan bank system patterned after the successful Federal Farm Loan Banks, indicate that the necessity for financial aid is being realized.



Barrett Specification Roof on Round House of Southern Railway System at Finley Yard, Birmingham, Ala.

Meeting the severe conditions of railroad service—

THE giant round-house pictured above with stalls for twenty-five locomotives, and all the other buildings of the Southern Railway System shown on this page, are covered with Barrett Specification Roofs.

The construction officials of the Southern Railway System used Barrett Specification Roofs because they knew they would stand up well under the severe conditions of railroad service.

Neither the intense heat directly under a round-house roof, nor showers of red-hot sparks, nor the hot sulphurous gases from the locomotive smoke-stacks have any terrors for a Barrett Specification Roof.

Lowest Cost Per Year of Service

Years of service on all types of flat-roofed buildings, under every condition imaginable, have proved conclusively that a Barrett Specification Roof is *the best roof to be had regardless of price*; and, what is more to the point, that *it costs less per year of service* than any other type of permanent roofing.

Barrett Specification Roofs require no maintenance; take the base rate of insurance and are absolutely guaranteed for 20 years.

The 20-Year Guaranty Bond

This guaranty is in the form of a 20-year Surety Bond issued by the United States Fidelity & Guaranty Company of Baltimore and is furnished without charge.

We offer this bond on all Barrett Specification Roofs of 50 squares and over in all towns of 25,000 population and more *and in smaller places where our Inspection Service is available*. Our only requirements are that the roofing contractor shall be approved by us and that The Barrett Specification dated May 1, 1916, shall be strictly followed.

A copy of the Barrett 20-Year Specification, with roofing diagrams, sent free on request.

The Barrett Company

New York	Chicago	Philadelphia	Boston	St. Louis	Cleveland
Cincinnati	Pittsburgh	Detroit	New Orleans	Birmingham	Kansas City
Minneapolis	Dallas	Nashville	Salt Lake City	Seattle	Peoria
Duluth	Milwaukee	Bangor	Washington	Johnstown	Atlanta
Lebanon	Youngstown	Toledo	Columbus	Richmond	
Latrobe	Bethlehem	Elizabeth	Buffalo	Baltimore	

THE BARRETT COMPANY, LIMITED: Montreal Toronto Winnipeg
Vancouver St. John, N. B. Halifax, N. S. Sydney, N. S.



Barrett Specification Roof on Freight Depot and Office Building of the Southern Railway System, Atlanta, Ga.



20-year Barrett Specification Roof on Shed for Repair of Steel Cars of the Southern Railway System, Coates, Tenn.



Kawneer STORE FRONTS

The Thinking Builder Knows

that the eyes of pedestrians travel no higher than the store fronts. And that no matter how elaborate a building may be above the ground floor, it is money wasted if the store fronts are not equally or more than equally attractive.

For the same reason he knows that an antiquated building may be modernized by simply substituting modern store fronts.

The Honest Builder Knows

that Kawneer Store Fronts are actually superior. Their superiority in beauty — is visible to the eye. Their economy is visible both in the price lists and in their long wear.

Kawneer Fronts are made entirely of metal — copper or bronze. They are furnished complete from sidewalk to I-beam.

The Wise Builder Knows

that for reputation-building, the Kawneer installations are a tremendous aid. A pleased customer — who will advertise the builder by word of mouth — is invariably the result. And the Kawneer-equipped building is a monument to the builder's ability — one that he can point to with pride as "one of his jobs."

Write today for new Catalog K

KAWNEER MFG. CO. 1320 Front St., Niles, Mich.





YOUR clients will appreciate that you have selected handsome harmonious items especially suited to the purpose when in planning garages you specify

Stanley Garage Hardware

Every item in this line which is complete for garages of every size and type has been planned, designed and manufactured with the advantage of 76 years' experience in the manufacture of wrought steel hardware. For beauty of design, ease of operation and sturdy strength, Stanley Garage Hardware bears out the well-known reputation of the Stanley product.

We shall be glad on request to mail you our complete catalogue

"Specify Ball Bearing Butts for Permanence"

THE STANLEY WORKS

NEW BRITAIN, CONN., U.S.A.

New York 100 Lafayette St.  Chicago 73 Lake Street

From Coast to Coast



Hotel Pennsylvania New York City
the largest of the Statler group
To be equipped with
Russwin Hardware

RUSSWIN
RUSSELL & ERWIN

Builders
or
Finishing
Hardware

RUSSELL & ERWIN MFG. COMPANY

The American Hardware Corporation Successor

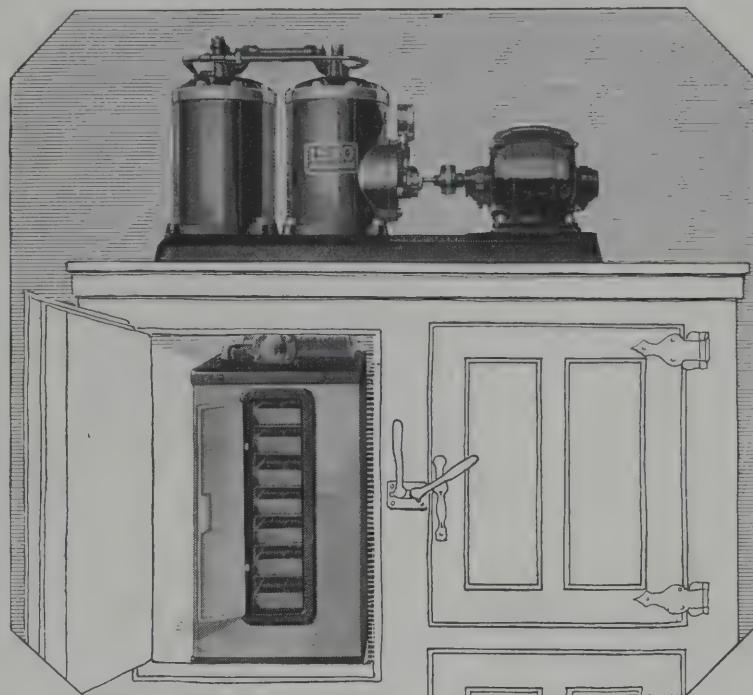
NEW BRITAIN, - CONN.

NEW YORK

SAN FRANCISCO

CHICAGO

LONDON, ENG.



Here Isko is shown mounted on the ice box, a popular installation. Through the open door of the refrigerator is shown the Isko ice-making chamber where your favorite spring water may be frozen into convenient sized cubes for general household use.

Successor to the Iceman and his Tongs

Cold that is dry—cold that is pure—cold that is automatic, constant; cold by day—cold by night—cold without ice: that is Isko cold.

Isko is the electric cold-maker. It perches on the ice box, sits beside it on the floor or in the next room. It may even be installed in the basement.

Wherever it is placed, Isko does its work, silently, tirelessly, automatically—succeeding the iceman and his tongs, making you independent of melting, germ-laden ice; replacing damp, unhealthful refrigeration with a dry, wholesome, scientific cold—Isko cold.

Isko is as independent as a good electric clock. You need never touch it once you set it working.

Isko is simply constructed. It has but two moving parts and they revolve in oil.

Isko uses no ammonia. It is absolutely free from danger. Both lubricant and refrigerant are per-

manently sealed in the machine, one need not bother about them.

Adjust the thermostat at the desired temperature, switch on the electric current and Isko goes to work. You might take a trip to Europe; Isko would go on making cold, silently, tirelessly, automatically unless you turned off the current.

Isko saves food—keeps it pure and fresh. Vegetables stay crisp in Isko cold. Milk and butter are kept sweet and wholesome in its dry, dry chill.

Isko makes cubes of pure, clear ice for table use.

And all this convenience, all this safeguarding of the family's health, all this independence of the ice wagon, costs less than ice.

Isko is also made in larger sizes for clubs, restaurants, meat markets and other commercial houses.

THE ISKO CO., 111 W. Washington St., CHICAGO, ILL.

ISKO

Fits Any Ice Box



Varnish Quality—plus

In the use of varnish, its highest utility is determined not only by quality but by adaptability, as an unsuitable varnish may do as much harm as a poor one. Every architect knows it costs much less to prevent varnish mistakes before applying than to rectify them afterwards.

This is why it is so desirable for the varnish specifications to be full and explicit, to shut out the use of poor or unsuitable finishes that might spoil the appearance of an otherwise fine interior.

Berry Brothers' Varnishes, Stains and Enamels produce artistic and lasting finishing effects on wood-work, floors, walls and ceilings.

BERRY BROTHERS^{INC}
 World's Largest Makers
 Varnishes and Paint Specialties

Detroit, Michigan

Walkerville, Ontario

784

Liquid Granite
 FLOOR VARNISH

Luxeberry
 WHITE ENAMEL



THE EDITORS FORUM



WE have devoted the major portion of this issue to hospital buildings with the thought of bringing to the attention of the profession the latest examples at a time when plans for the erection of new hospitals are being discussed in a great many localities. Attention is given in this one number to both general and tuberculosis hospitals; the latter are being thought of by the medical profession in an entirely different way than was the case a few years ago. They demand of the architect today fully as much research and ingenuity in planning as the general hospital. The danger to the public that exists through the ease with which tuberculosis is spread is very fast developing a public policy of adopting vigorous measures for its suppression. Most States maintain sanatoriums for treatment of sufferers, and a number of States have recently passed legislation requiring their cities exceeding a certain population to provide hospital facilities, and in New York, Massachusetts, Texas and some other States, county institutions to care for cases beyond the incipient stage have been required by law.

In the field of general hospitals, it is probably conservative to place the number of buildings at one thousand that have been delayed in construction through the difficulties imposed by war. With opportunities for securing hospital funds better now than for a number of years past, an important resumption of hospital building may soon be expected.

THE requirements for the successful practice of architecture are constantly growing more numerous and complex in keeping with the general tendencies of the modern business world. Today the architect must be in a position to advise his client on a great many subjects of a purely business nature, with which he was formerly little concerned. Inasmuch as a single item—the rate of insurance on a proposed building, the percentage of the total cost a loan may represent, or a fear of depreciating land value, may of itself be sufficient to deter an owner from going ahead with a building, it is for the architect's own best interest to have definite knowledge of these contributing factors so that he may view the problem from all angles.

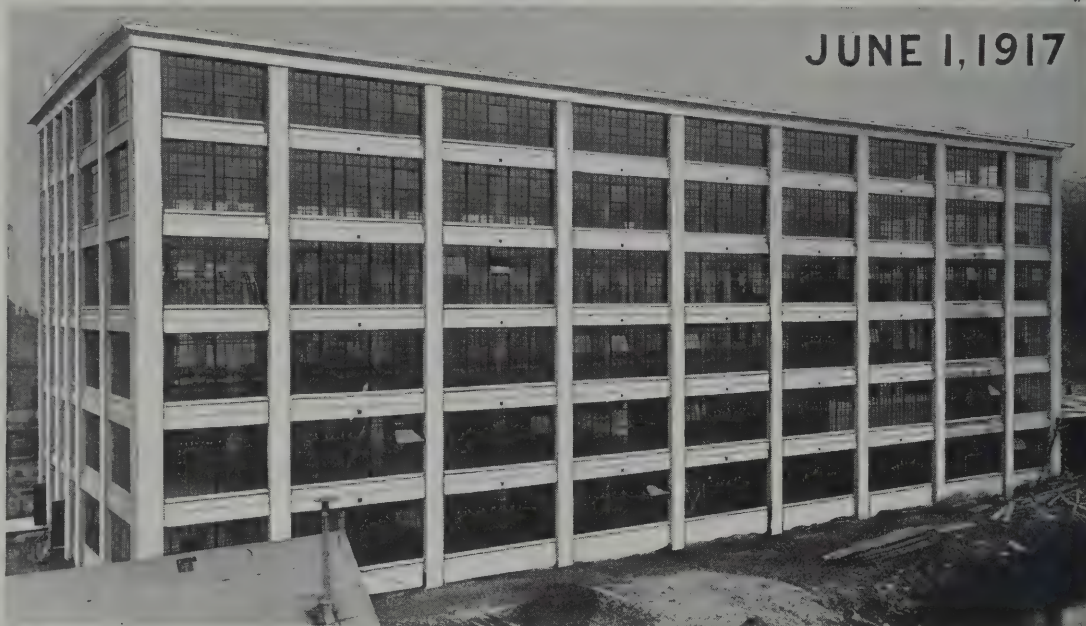
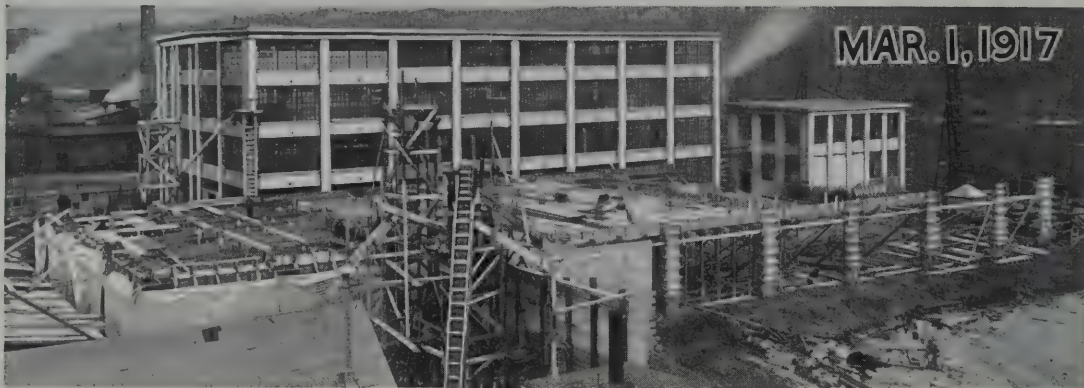
The need for such information has prompted us to establish a Department of Architectural and Building Economics as a regular feature of THE FORUM, edited to consider the third function of the profession—business relations. Its initial appearance is in this issue and it is hoped that the data it will present with reference to financing and other business factors will provide the type of information architects have lately shown a wide interest in.

BOOK NOTE

THE AMERICAN HOSPITAL OF THE TWENTIETH CENTURY. By Edward F. Stevens, Architect. 275 pages, 7 x 10 inches. Illustrated. New York. Architectural Record Publishing Company. Price \$5.00 net. The works available on modern hospital design and construction are few in number and a book prepared by an architect, who for a number of years has devoted himself exclusively to the design of medical institutions, will be received as a valuable source of information. Mr. Stevens begins his consideration of the subject at the start of the present century, for in the brief space of time since elapsed probably the greatest strides in hospital design and equipment have taken place. Advance in medicine and surgery is so rapid that there is little advantage to be had in the study of earlier hospitals. The book is composed of short chapters on the various elements of hospital building. The subject matter is presented from the architect's viewpoint—evolving the plan to accord with requirements laid down by the medical practitioners without detailed reference to the reasons shaping those requirements.

A particularly valuable feature of the book is the large number of plans that are reproduced at good size. These are introduced through the various chapters to illustrate points of the text, and with the descriptive notes of each, a mass of detailed information is given in a limited space. Special chapters are devoted to the subjects of heating, ventilating, plumbing, hospital finish and equipment, in the preparation of which the author had the advice of specialized experts. They are well illustrated with diagrams of good size and photographs of installations.

Judging from the buildings illustrated, which are representative of American work, the modern hospital rates very high from the standpoint of plan. There has been a satisfactory spirit of coöperation between the medical and architectural professions that has been a great aid in bringing about this development. Considering the average hospital from the architectural viewpoint, however, it cannot be said that a correspondingly high standard has been reached. The expense of equipment, mechanical appliances and the large amount of building required per patient have probably made it difficult to expend money for anything but a severely utilitarian structure. It is to be hoped that architects can overcome this handicap and through exercise of ingenuity in the use of materials and color give to the façade of the modern hospital the cheerful, decorative character that in healing the sick has definite virtue, and dispel from the public mind the last trace of prejudice that makes the hospital appear cold and institutional.



215' x 83'—6 Stories

NORWICH WOOLEN MILLS CO., Norwich, Conn.
Occupancy in 4 Months

C. R. Makepeace & Co.,
Engineers

*Construction Costs Are Well Below the Commodity
Price Level. Build Now! Costs May Increase.*

Considerable reduction in building costs from the high point of 1918 has occurred. At no point, however, did building costs during the War approach the high price level of commodities.

Progressive concerns are planning their extensions now, for they do not expect a big drop in construction costs. In fact excessive demand may even force costs upward. Don't be behind your competitors. Build now!

"TURNER for CONCRETE"

TURNER CONSTRUCTION CO., NEW YORK

BOSTON, *Oliver Ditson Bldg., 178 Tremont Street*
PHILADELPHIA, *Presser Bldg., 1713 Sansom Street*

BUFFALO, *Prudential Bldg.*
PITTSBURGH, *First National Bank Bldg.*

THE ARCHITECTURAL FORUM

VOLUME XXX

NUMBER 6

CONTENTS for JUNE 1919

PLATE ILLUSTRATIONS

	Architect	Plat
WILLIAM WIRT WINCHESTER MEMORIAL HOSPITAL, NEW HAVEN, CONN.....	<i>Scopes & Feustmann</i>	81-85
NORFOLK COUNTY TUBERCULOSIS HOSPITAL, BRAINTREE, MASS.....	<i>Harold Field Kellogg</i>	86-89
CAMBRIDGE TUBERCULOSIS HOSPITAL, CAMBRIDGE, MASS.....	<i>Charles R. Greco</i>	90
BROOKLYN HOSPITAL, BROOKLYN, NEW YORK	<i>Lord & Hewlett</i>	91, 92
SALEM HOSPITAL, SALEM, MASS.....	<i>Haven & Hoyt</i>	93
COLUMBIA HOSPITAL, MILWAUKEE, WISCONSIN	<i>Richard E. Schmidt, Garden & Martin</i>	94, 96

LETTERPRESS

	Author	Page
VIEW OF WALL STREET, NEW YORK	<i>Frontispiece</i>	
THE EDITORS' FORUM.....		21
THE COUNTY TUBERCULOSIS HOSPITAL	<i>William H. Scopes and Maurice M. Feustmann</i>	155
PRINCIPLES OF HOSPITAL PLANNING IN VIEW OF FUTURE EXPANSION.....	<i>Richard E. Schmidt</i>	159
THE WILLIAM WIRT WINCHESTER MEMORIAL HOSPITAL, NEW HAVEN, CONN.....	<i>Scopes & Feustmann, Architects</i>	162
DESCRIPTION OF HOSPITALS IN THE PLATES ..		165
HOSPITAL DESIGN. The Relation of Initial Design to Expense of Operation and Maintenance	<i>Lindley Murray Franklin</i>	171
MATERNITY WING, FAULKNER HOSPITAL, JAMAICA PLAIN, MASS.....	<i>Haven & Hoyt, Architects</i>	172
THE MECHANICAL EQUIPMENT OF HOSPITALS	<i>D. D. Kimball</i>	173
ISOLATION BUILDING, HURLEY HOSPITAL, FLINT, MICH.....	<i>Davis, McGrath & Kiessling, Architects</i>	176
THE CARSON C. PECK MEMORIAL HOSPITAL, BROOKLYN, N. Y.....	<i>Ludlow & Peabody, Architects</i>	177
DEPARTMENT OF ARCHITECTURAL AND BUILDING ECONOMICS.....	<i>C. Stanley Taylor, Associate Editor</i>	181
NEW GARDEN APARTMENTS IN QUEENS COUNTY, NEW YORK CITY.....	<i>Andrew J. Thomas, Architect</i>	187
EDITORIAL COMMENT.....		192

Published Monthly by
ROGERS AND MANSON COMPANY
 85 Water Street, Boston, Mass.

Advertising Department, 103 Park Avenue, New York

Yearly Subscription, payable in advance, U.S.A., Insular Possessions and Cuba \$5.00
 Canada..... \$5.50 Foreign Countries in the Postal Union 6.00
 Single Copies..... 50 cents All Copies Mailed Flat

Trade Supplied by American News Company and its Branches. Entered as
 Second Class Matter, March 12, 1892, at the Post Office at Boston, Mass.
 Copyright, 1919, by Rogers and Manson Company



VIEW IN WALL STREET
TOWARD TRINITY CHURCH, NEW YORK CITY
From Photograph by John Wallace Gillies

The Architectural Forum Series of distinctive architectural street compositions of New York City. The majestic facade of the Subtreasury is seen at the right, and beyond, the lower stories of the Bankers' Trust Building.

THE ARCHITECTURAL FORUM

FOR QUARTER CENTURY THE BRICKBUILDER

VOLUME XXX

JUNE 1919

NUMBER 6

The County Tuberculosis Hospital

A DISCUSSION BY WILLIAM H. SCOPES, A. I. A., AND MAURICE M. FEUSTMANN, A. I. A.

AN examination of the planning of a large number of sanatoriums for the tuberculous, particularly county institutions, erected throughout the country during the last ten or twelve years, shows that in many instances a large percentage of the patients is housed in shacks or open wards, reserving relatively little infirmary accommodations for severe cases. So widespread has the use of the shack type of pavilion become as to justify the assumption that many designers and projectors of sanatoriums consider this the accepted type of housing for all but the most advanced cases. The originator of the shack, the late Dr. Herbert M. King, never intended such an indiscriminate use of the product of his ingenuity. He evolved this type of housing to provide inexpensive accommodations for needy patients of the incipient, ambulant or hardy type; in other words those who were up and about, able to do for themselves and able to stay out of doors, day and night, in all kinds of weather. Restricted to this class of patient (not necessarily needy, however,) the open ward type has served and is still capable of serving a most useful purpose, particularly where funds are limited. It might be remarked, however, that some sanatorium physicians do not look with favor upon the shack even for incipient cases in climates where long and severe winters prevail. But in any event the open ward pavilion is not suited to the moderately advanced case and, of course, it is out of the question entirely for the far advanced case. The above statement is made with the reservation that sometimes a moderately advanced case will make such progress toward recovery that shack housing is practicable.

Some fifteen or more years ago a leader in the movement to fight tuberculosis predicted that today there would be no more tuberculosis. This influenced much construction and many workers, perhaps at times unconsciously, and may be responsible for a great deal of the almost temporary construction of the past few years. Today tuberculosis has not disappeared from the face of the earth and there should be no relaxation in the effort to provide suitable hospital accommodations for its treatment. Tuberculosis hospital design and construction should be taken as seriously and the structures provided should be made equally as permanent as buildings for general hospitals.

Just here it might be well to restate the hospital or sanatorium requirements for types of tuberculous patients mentioned above. Due to the fact that the public has been thoroughly instructed as to the importance of open air in the treatment of tuberculosis, the notion has taken rather firm hold that, after the average patient has been provided with a place on a porch and a washroom, the principal wants have been taken care of. The situation, however, is not so simple, for the patient has other experiences than to repose quietly out of doors the better part of twenty-four hours. Some of the manifestations to be combatted and provided for are fever, chills, night sweats, paroxysms of coughing, hemorrhages (or at least discoloration of the sputum,) pleuritic pains and a host of others. Some of these manifestations render the patient absolutely helpless; at such times, and the latter are by no means seldom, the tuberculous patient requires all the comforts of the small general hospital ward or private room with practically all of the usual hospital accessories and in addition to this, ample porch room to which the patient must have the freest access even when moribund, because the latter state in tuberculosis often lasts for weeks—and open air is not to be denied even the dying patient if it be desired.

The impracticability of caring for a patient with any of the above manifestations in an open shack or lean-to must be apparent even to a layman. Consideration should be given the fact that many sanatorium physicians and chest specialists insist on bed rest for the first month of treatment even in early cases.

It should be understood that the condition of the patient described above applies not to the fewest cases which the county hospital may be called upon to treat, but to the majority of cases, in some instances as high as eighty per cent of the admitted patients. If this statement comes as a surprise to many, let them be assured that even in some private sanatoriums, receiving no public funds whatever and therefore free to pursue a fixed policy of accepting only the most favorable cases, it is difficult to hold down the proportion of moderately advanced patients to less than thirty-five to forty per cent. When the average patient afflicted with tuberculosis is willing to become a county charge, his disease is usually much farther advanced than the incipient stage.

Hence it will be seen that the housing of the average tuberculous patient is not best accomplished by an indiscriminate use of the open-air ward or shack, especially when the requirements of the county sanatorium are under consideration. This statement requires no better proof than to point to the well established fact that there is at this moment an urgent demand throughout the country for more infirmary accommodations to take care of tuberculous patients.

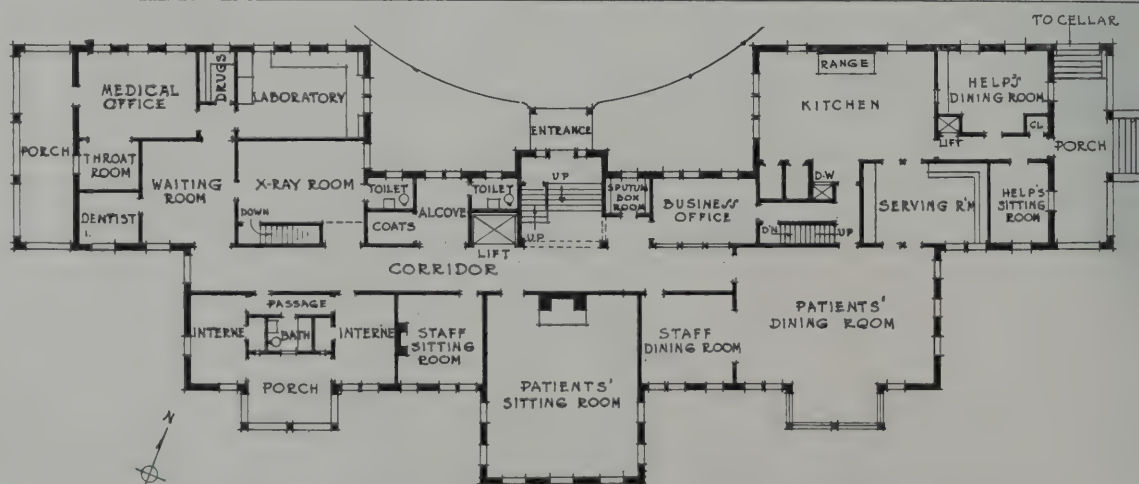
It is, therefore, rather surprising that county officials are not only permitted, but encouraged to place before the electorate propositions to erect sanatoriums in which the accommodations for the moderately advanced and the advanced cases are not greater than in many institutions receiving only the most favorable cases, whereas the county must or should admit all cases.

It is for the purpose of contributing something towards a movement which will act as a corrective to this tendency, that the authors of this article desire to submit suggestions for the planning of a building for a small county sanatorium which shall be arranged and equipped to take care of all classes of patients as reported by the visiting nurse, poor master or other official. The scheme is not put forth in a dogmatic manner; it is not intended to be followed as the standard type of county sanatorium, because it is recognized that each county will have its own special needs to consider, but as it contains a number of features which have been found workable in other institutions, it may prove of use to those contemplating the planning of new hospitals. The floor plans are those of a main building which shall be the nucleus of a group forming the county sanatorium, starting with thirty-two beds, the final capacity being about fifty adults, the initial beds being distributed in rooms holding one, two, three, or seven patients, thus enabling the institution from the start to care for early, moderately advanced and far advanced cases with considerable ease and flexibility. In other words, all wards

and single rooms may be used either for infirmary or early cases because any housing suitable for advanced cases can be used for early cases and this is not true of the reverse. As all the rooms, etc., are designated on the plans, only the salient features need be described. The building, facing slightly east of south, is supposed to be located on a site which slopes gently from north to south. Only limited use of the basement is contemplated; it is intended principally for storage purposes as it is not consistent in a tuberculosis sanatorium to ask employees to spend much time in a basement where the finished floor line is below grade level. The handicap of lack of ground space does not apply in the case of a sanatorium or hospital built in a country or suburban district. The heating plant may be located in the basement, although a better plan would be to construct a small building to contain the heating apparatus, laundry, power plant (possibly) and rooms for the male employees.

Referring to the first floor plan, it will be noted that the principal entrance is at the rear, thus shielding the patients from the noise and dust of vehicles. The domestic administration is kept as far as possible from the medical administration. At the main entrance is placed a bureau of information and business office close enough, at the same time, to the kitchen and accessories to control activities in that part of the house. The dining room is supposed to accommodate all the patients likely to go to their meals when the institution has reached its capacity. Near the entrance to the dining room is placed a room for sputum cups; if this is not provided, then ambulant patients going to their meals are likely to deposit their sputum cups anywhere in the main corridor.

The interne's suite, consisting of bedroom, bath, study and sleeping porch, is at the southwest corner near the medical department. The latter has been planned on a liberal enough scale to provide the medical wants of the hospital when it will have reached its maximum growth. So important has the



First Floor Plan of Suggested County Tuberculosis Hospital of 32 Bed Capacity
Scopes & Feustmann, Architects

X-ray become as an aid in the diagnosis of tuberculosis that it has been thought well to place it conveniently on the main floor very close to the medical office. A small staircase leads from the X-ray operating room to the dark room and to the laboratory storerooms and plate storage rooms in the basement.

The laboratory is considerably larger than would be required for routine examinations; this has been done intentionally, for while the county sanatorium should not undertake research work, yet if a laboratory of comfortable dimensions is provided, containing adequate equipment, it will undoubtedly act as a stimulus to the physician in charge and to the assistants he will require as the institution grows; in this way the county will be able to attract to its medical staff men of greater experience and ability than if no such inducement were offered. Furthermore, this laboratory can, and indeed should, be used to make all the bacteriological and chemical tests which the county will require in the treatment of its indigent sick; such tests need not be confined to tuberculosis.

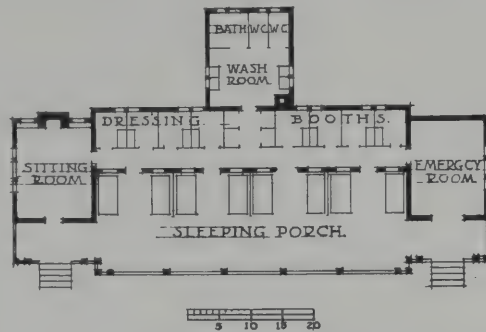
The throat room is intended, not only for the purpose of laryngeal and pharyngeal treatment, but for administering gas in artificial pneumo-thorax. For obvious reasons a dental room is considered not only desirable, but essential.

Patients are housed on the second and third floors. The latter is not illustrated, but is the same as the second story, except that the nurses and women office employees are quartered in the east wing over the maids' rooms; a linen storeroom and mending room will also be located here.

As stated above, there will be thirty-two beds, sixteen to a floor, one sex to each floor. The distri-

bution of beds in wards and rooms of various capacities as indicated on the plans ought to permit the physician the greatest possible leeway in placing his patients according to the degree of the illness and idiosyncrasy of the individual. It is intended, however, that the earlier cases will be taken care of in the west wing. These wards with sleeping porches, wash-rooms and baths, and other accessories, really form a separate housing unit. The severest cases will be taken care of in single rooms, which will have individual porches. While ample porch space has been

allotted each patient, every effort has been made to shade the wards and rooms as little as possible, introducing not only direct light, but sunlight as well. The value of such an arrangement is minimized by some physicians, but if there is any efficacy at all in the disinfecting value of sunlight and fresh air, then it would appear well worth while to strive for the arrangement just

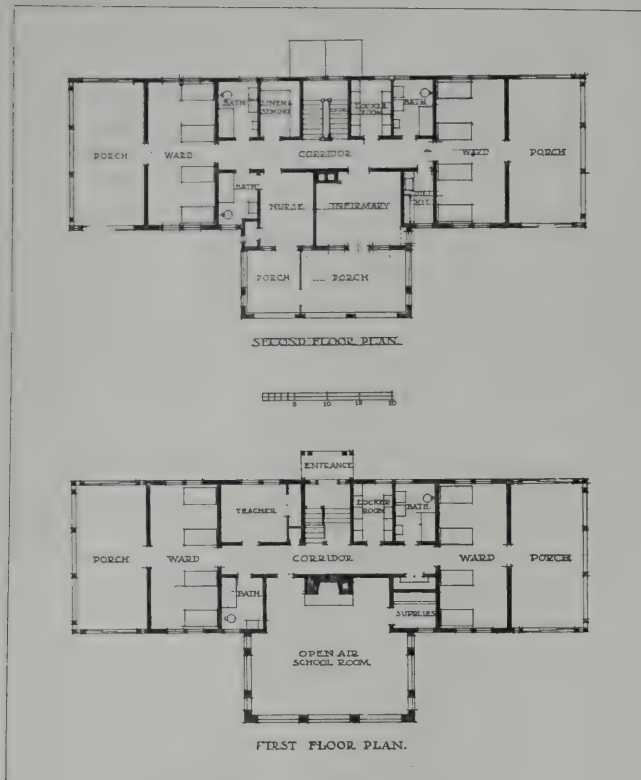


Floor Plan of Open Dormitory Type

described, which the authors believe to be the keynote of tuberculosis hospital planning. The psychic effect of cheerful and sunny interiors need hardly be enlarged upon at this late day. It will also be noted that practically no room of importance is shaded from direct light. Corridors have been made as open as possible without sacrificing economy in planning. It is to be regretted that institutional planning in respect to communications has not reached the stage of development in this country that is evidenced in European institutions where corridors are usually made open on one side. It is to be hoped that the desirability of such planning will be recognized at a not too far distant date by the medical profession, not alone in tuberculosis hospitals, but in general hospitals as well.



Second and Third Floor Plan of Suggested County Tuberculosis Hospital
Scopes & Feustmann, Architects



Floor Plans of Children's Unit in
County Tuberculosis Hospital Group

There is a diet kitchen on each hospital floor and, contiguous thereto, a moderate sized day room which may also be used as a dining room for those patients not quite well enough to go to the dining room, but who would prefer to be served at a table rather than from a tray in their beds.

The building is supposed to be flat roofed, which will give ample opportunity for an open sun porch in case it is desired to subject some of the patients to solar treatment for surgical tuberculosis, lupus, etc.

Regarding the growth of the institution, it is expected that it will proceed substantially upon the following lines: After the county sanatorium has demonstrated its ability to take care of thirty-two average cases and the educational propaganda has proceeded vigorously, it will then be prepared to receive a number of really incipient cases of the hardy type; perhaps, too, it will be able to house in simpler quarters those who have spent some time in the main building and whose condition will have become quiescent. It will then be well to provide for about sixteen of such cases, eight of each sex, housed separately, in one-story shacks or open air pavilions of the improved type. By the improved type is meant the placing of warm, comfortable dressing quarters with washing and toilet accessories directly back of the open wards so that patients need not subject themselves to the discomfort of walking the whole length of the cold

wards, which are sometimes quite long, before they reach a warm room. Each shack should also be provided with a small living room and an emergency room. The latter would permit accommodations for such patients who may be overtaken by a sudden hemorrhage or rise in temperature. Here they may be made comfortable until a place can be found for them in the main building.

The children of the county should also receive early consideration. Children are best housed in a separate building, and it is suggested having four wards in two stories, to take care of about eight of each sex; these wards to be arranged similarly to the seven bed wards in the main building with the necessary locker rooms, etc. The children's pavilions should have a moderate sized infirmary room for emergency cases and, above all, should be provided with one commodious room facing south, with sash so arranged as to make it practically an outdoor schoolroom so that the school work of the children, especially those that are in the incipient state, may not be interrupted. This work is to be in charge of a trained teacher, who, with another attendant, will have charge of this separate pavilion.

The question of occupation-therapy is also to be thought of. As funds will permit, a moderate sized workshop should be provided, having light and airy workrooms, a warm glue room, dark rooms for photographic work, small salesroom for the products of patients, etc., etc. Pending the construction of a workshop, such diversional occupations as basket weaving, bead work, mending, etc., may be done on the porches of the main building.

The layout such as here outlined is not an inexpensive one, nor is it intended to be, any more than the county courthouse is intended to be a cheap affair. But it is held that the scheme is not extravagant for the part which the county should play in the fight against tuberculosis when it starts out to build a sanatorium or hospital to house its indigent invalids. Tuberculosis hospitals for advanced cases should cost more per bed than general hospitals because:

First. Wards should not be as large as is permissible in general hospitals.

Second. Both indoor and outdoor accommodations are necessary for each patient.

Third. The system of construction adopted and the architectural treatment should be in no wise inferior to that adopted for the general hospital.

Fourth. If unattractive, cheerless and cheaply constructed buildings are erected, it will be found very difficult to keep the patient in the institution, which is not the least of the problem in the fight the county is to make against this insidious disease.

Principles of Hospital Planning in View of Future Expansion

ILLUSTRATED FROM PLOT PLANS OF HOSPITALS DESIGNED BY RICHARD E. SCHMIDT
GARDEN & MARTIN, ARCHITECTS

By RICHARD E. SCHMIDT, A. I. A.

WHEN the problem of designing a new hospital or the expansion of an existing hospital is entrusted to an architect, it is necessary that he study and analyze the needs of the community in which it is to be built in the following respects: the rate of increase of bed-patients, the numbers treated in the several classifications of diseases and ailments, the past work of an existing institution, and also the probabilities of financial support for a long term of years, holding in view sufficient elasticity to permit of a change in proportion in the probable number of patients, according to the several classifications and to accommodate the ever changing methods of treatment and technique of medicine and surgery. The architect should also examine the surroundings of the site to ascertain the line of least resistance in the acquirement of additional neighboring property if available statistics indicate a probable growth beyond the confines of the site in at least twenty-five years and develop the ultimate scheme accordingly. All of this must be done in accordance with the most advanced practice of medical service to develop the site to its highest and best use subject to the most modern practice of hospital design.

The sketch studies will be made *en bloc* based on roughly pre-determined units of subdivisions with the necessary auxiliaries, holding in view an ultimate generally pleasing aspect. This the architect should be able to do from ground plans, without developing elevation and details, for clients will, in very rare exceptions, only, be willing to pay for the service of complete plans of the ultimate scheme.

Inasmuch as it is beyond human possibility to anticipate the advances in medical treatment and

building improvements for a long term of years, it would probably be money unwisely expended to develop the complete scheme.

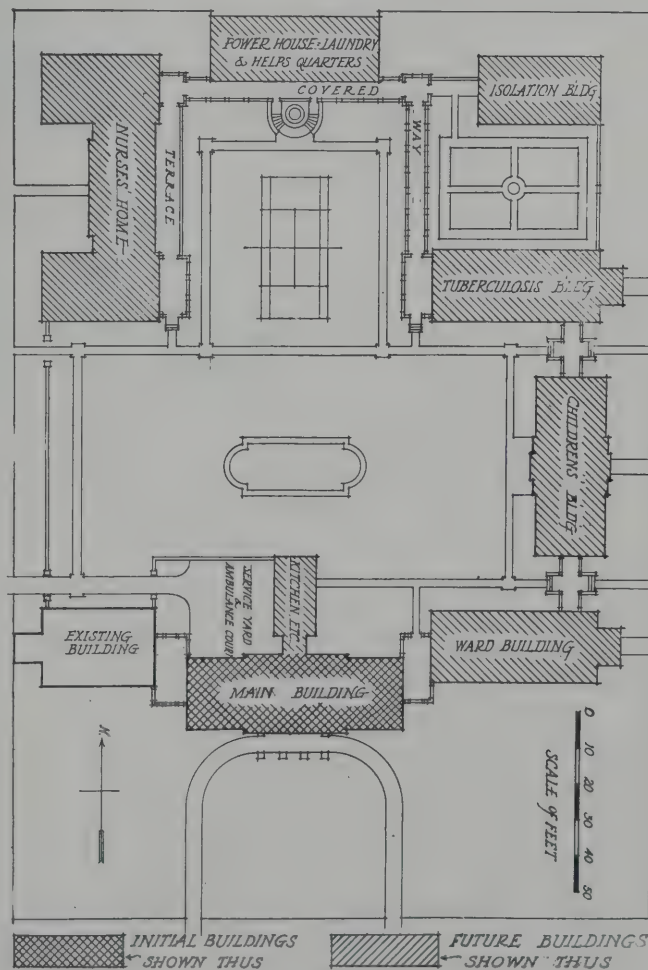
The principal element is to provide for a complete efficient operating hospital in its ultimate development with proper and convenient circulation without sacrificing these same necessary requirements in the portion, sometimes comparatively small, which is to be built and operated as the first unit.

It is obvious that this presents the greatest difficulty and opportunity to the designer, *i. e.*, to provide all of the auxiliaries and services in proper proportion to the original and smaller number of patients, without being out of balance in dimensions, and consequently in its cost as compared to that small number, and to arrange the most important parts so that they will be suitably and properly located for an increasing number of patient beds, thus eliminating the possible requirement of their complete removal

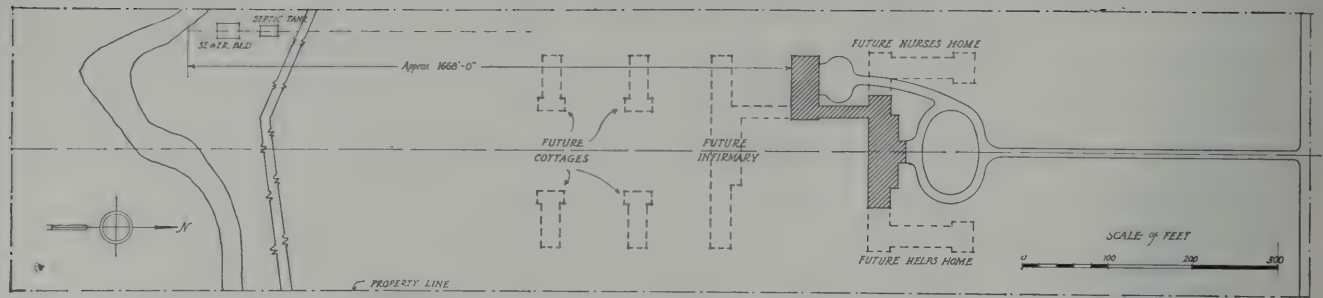
and an expensive rebuilding of the original section, when the time for enlargement arrives.

The wing which is first built must be convertible, floor by floor into rooms or wards for special purposes. Corridors must be placed to connect properly with additions, stairs and elevators so that they can remain where placed at the beginning and yet be quite conveniently placed for satisfactory and efficient use after enlargement.

The comparatively small principal entrance and business offices of the first section will in some instances (see plan of Columbia Hospital, Milwaukee, Wis.) be converted into a side entrance in the amplified building, some rooms and spaces will have to be devoted to functions for which they may not be perfectly adapted in dimensions and location in the first



Plot Plan, Lafayette Home Hospital, Lafayette, Indiana



Plot Plan of Adams County Tuberculosis Sanatorium, Quincy, Illinois

portion to be built, and again some of the departments, such as the operating sections, which are expensive to install, should be so located that they can be expanded without removal, or easily converted for the use of a special department such as the delivery rooms of a maternity section.

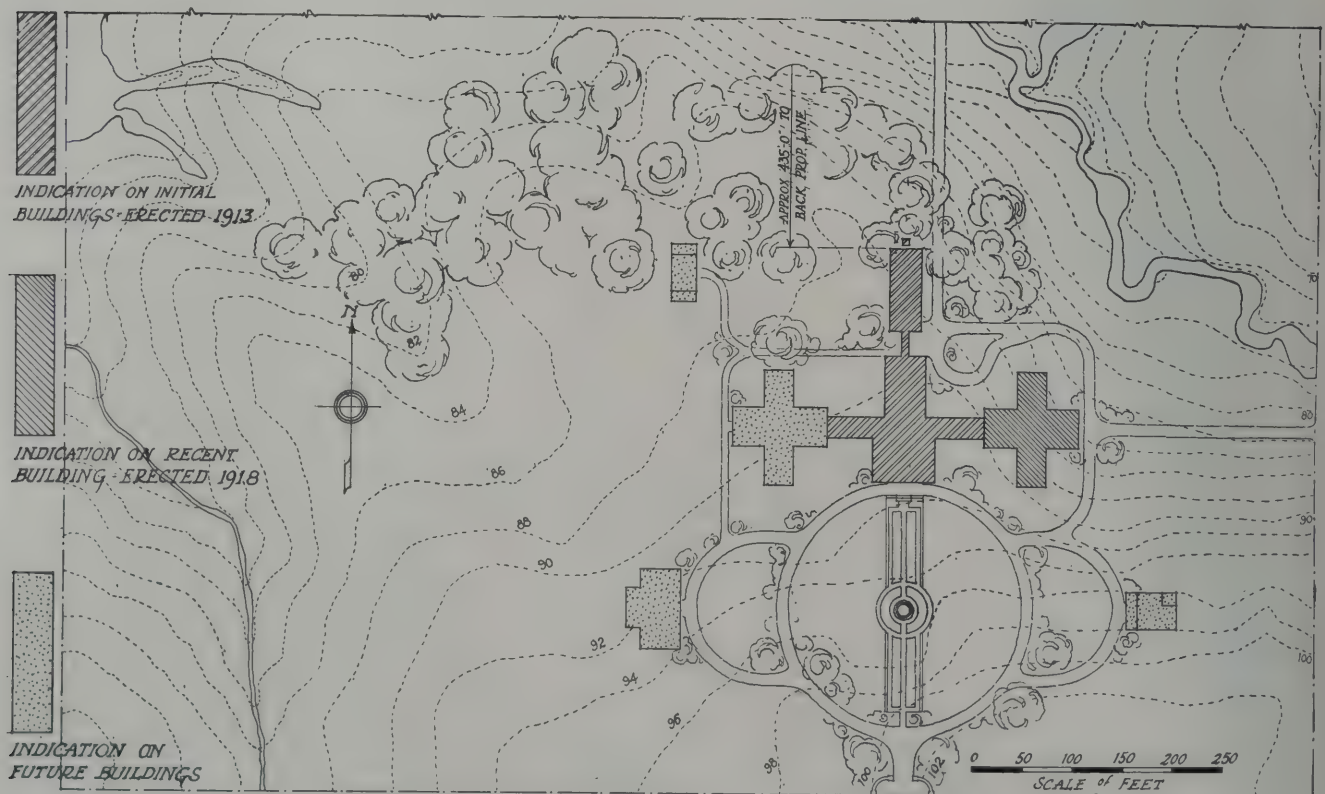
If the beginning is comparatively small, the kitchen, laundry and heating units may have to be placed within the first unit, proportionate to the required service, or, in inexpensive one or two-story additions which can be sacrificed by removal without too great a loss when the time arrives to build a separate service and power building, keeping in mind a convenient and efficient point of connection of heating, water and electric services as well as all other services. (The beginning of Columbia Hospital, Milwaukee, Wis., and Home Hospital, Lafayette, Ind., are planned on this basis.)

Obviously, a separate building of this kind, if

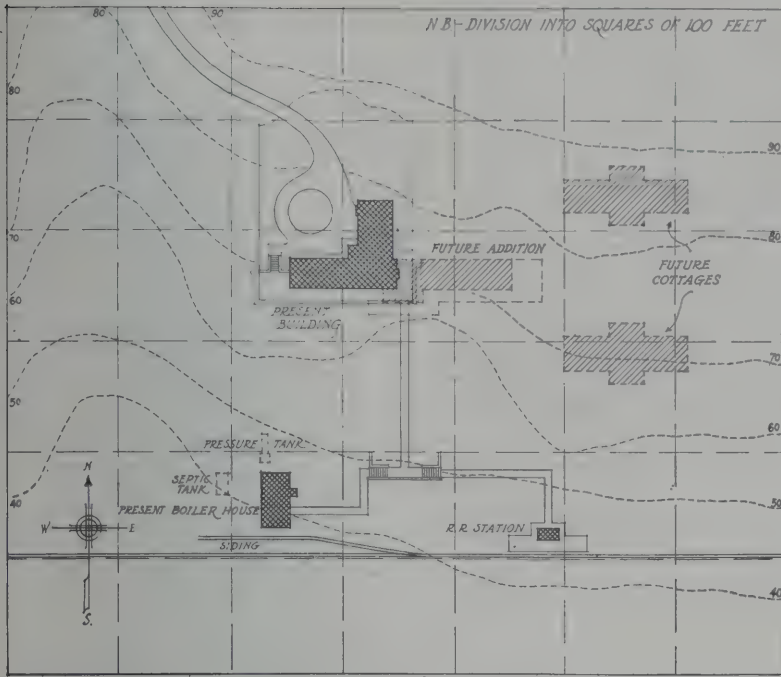
built at the outset, would overbalance the original patient capacity in size and cost, and in some instances would cost more than the funds available for the entire first unit.

If, however, the portion which is built at the inception of the scheme is a considerable proportion of the ultimate size, the service building may be built of sufficient dimensions, with ample space for the later installation of additional boilers, machinery, kitchen and laundry equipment to provide, with the original installation, the necessary service for the completed scheme. (See block plan of Decatur and Macon County Hospital, Decatur, Illinois.)

The Illinois Central Hospital at Paducah, Ky., the Pureair Tuberculosis Sanatorium, near Bayfield, Wis., and Adams County Sanatorium at Quincy, Ill., are compromises of the two methods described for the present and future accommodations for the service equipment.



Plot Plan of Decatur and Macon County Hospital, Decatur, Illinois



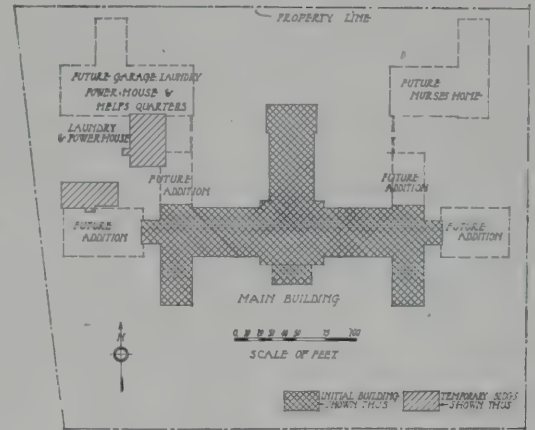
Plot Plan of "Pureair," County Tuberculosis Hospital near Bayfield, Wis.

It will be proper generally to arrange temporary quarters for the services if the initial hospital is to have a capacity of less than fifty per centum of the ultimate.

The foregoing statements are more definitely applicable to the low pavilion type, than they are to the high city hotel block plan type, which, happily,

part of the first portions to be built will endure and serve all practical purposes throughout many years.

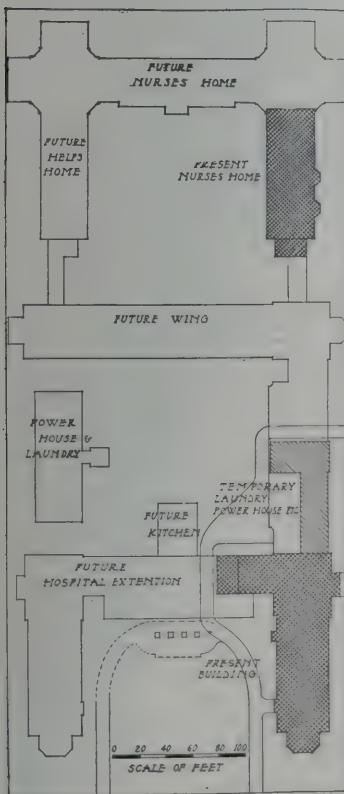
As stated at the beginning, the success of such planning will depend upon investigations made at the start relative to the probable growth of the institution, and the foresight with which the principles of administration are determined for the building's operation.



Plot Plan of Illinois Central Railroad Hospital, Paducah, Kentucky

appears to be declining in popularity. The latter can be built to sustain additional stories and presents comparatively few difficulties to increasing its capacity.

The architects' problem is, therefore, to place the foundations of the institution in such a manner that the larger



Plot Plan, Columbia Hospital, Milwaukee, Wisconsin, Showing Future Growth



View of Columbia Hospital, Milwaukee, Wisconsin, Showing Temporary Power Building and First Unit of Nurses' Home

The William Wirt Winchester Memorial Hospital, New Haven, Conn.

SCOPES & FEUSTMANN, ARCHITECTS

THE William Wirt Winchester Memorial Hospital was designed for the treatment of advanced tuberculosis. The objects to be attained have been described so well by Prof. George Blumer in an address at the dedication exercises, that a portion of his remarks are quoted.

"When nine years ago the directors of the New Haven Hospital received the preliminary gift for the care of tuberculous patients, the first question which they had to decide was the use which should be made of the fund. While the laity are apt to think of tuberculosis as mainly a disease of the lungs, the medical man realizes that this is by no means the case. In childhood particularly, other structures such as the bones and joints and the lymphatic glands are likely to be attacked, and a fund for the care of tuberculous patients can therefore be put to a variety of uses. The executive committee of the hospital, feeling that a grave responsibility rested upon them, obtained through correspondence the opinion of the leading experts in tuberculosis in the United States, and the unanimous conclusion of these experts was that the fund would be best used by caring for advanced cases of pulmonary tuberculosis. It was pointed out by those whom we consulted, that in the first place these are the patients who are mainly responsible for the spread of the disease. It is chiefly through the dried expectoration of the patient with pulmonary tuberculosis that the germs of the disease are disseminated. It was also pointed out that at that time the tendency in the United States had been toward the establishment of sanatoriums for early cases rather than hospitals for advanced cases. This tendency has been decidedly modified in recent years,

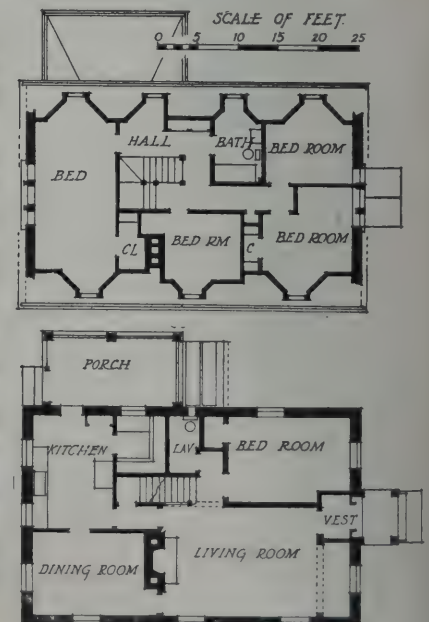
in this state particularly, among others, by the establishment of state sanatoriums caring for patients in all stages of the disease. It is still, nevertheless, a fact that the number of hospital beds available for the care of patients in advanced states of the disease is far from adequate.

This hospital, therefore, was planned particularly for the care not of incipient tuberculosis, but of advanced tuberculosis. Its purpose necessarily influenced the type of construction adopted. Advanced cases of tuberculosis are usually bedridden, are often seriously ill and in short require just the same sort of hospital care as cases of typhoid fever, of pneumonia or other acute illnesses. On the other hand certain patients with advanced tuberculosis show remarkable powers of recuperation. There is no chronic disease perhaps regarding which the prognostic judgment of the physician is more likely to be at fault than chronic pulmonary tuberculosis. Furthermore even advanced cases of pulmonary tuberculosis are not all equally ill and do not require exactly the same sort of care, and these facts had an influence on the type of construction that this hospital presents.

The general plan of the hospital is of the so-called pavilion type and, as is usually the case, the administrative structures are placed as near to the center of the plant as possible. For the treatment of patients two types of structure are provided. The two wings which are nearest to the center of the building represent one type and the two buildings most remote from the center represent another. The buildings nearest to the center are planned for the care of the more advanced cases. The important feature of these buildings is that there are no very large wards, most

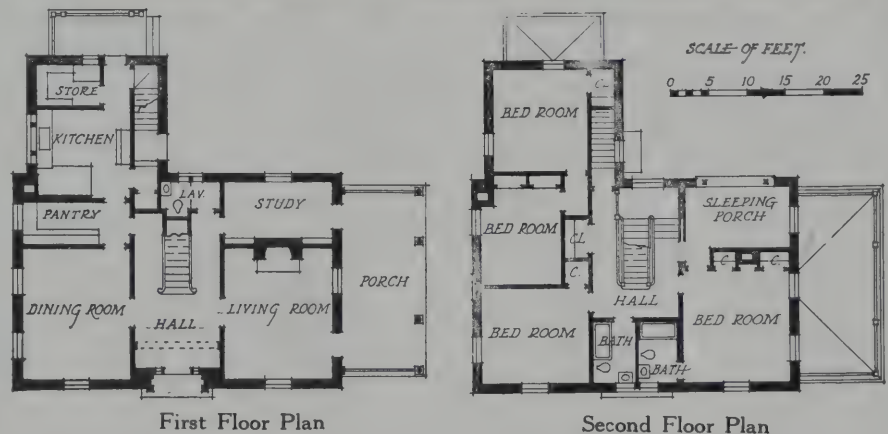


Floor Plans and Exterior View of Gardener's Cottage



of the patients' space being taken up by rooms holding from one to two or three beds. There is room on the porches for every patient in the institution. The buildings which are farthest from the central administration represent what is commonly spoken of as the shack type. In these buildings the patients are expected to live and sleep outdoors entirely, except in bad weather, so that the structure consists essentially of a large porch which communicates with the heated dressing rooms and a living room which may be used in severe weather. These buildings are to be used by patients who are not bedridden and they present from the patient's point of view, the element of hope. A patient may be admitted in a bedridden state and there is always a chance that recovery will take place to such an extent that he can be transferred to the shacks and thus be encouraged and stimulated so that further improvement will occur."

The planning was definitely influenced by certain other considerations. As the site embraced a considerable area suitable for the placing of the hospital buildings, it was felt that they should not be over two or three stories in height to secure the best results in architectural treatment as well as a most satisfactory arrangement for housing the patients. One of the most difficult features to handle in designing tuberculosis hospitals and sanatoriums is the necessary porches, and when these are over three stories in height it is almost impossible to find suitable precedent for the correct architectural expression of these features. The site chosen is a beautiful one and most admirably suited to the purpose. When the fact is borne in mind that the institution is for the treatment of indigent advanced cases, the many advantages of the site are apparent. It is within a single carfare trolley ride of New Haven. The elevation, while ample in relation to immediate surroundings, is not too difficult of negotiation for those not in most robust condition. It is thus a simple matter for friends, members of the family and relatives to visit the patients, a factor of great importance in making the invalid happy and contented and willing to remain in the institution. This is not so essential where patients are in the incipient stage of the disease and



Chief Physician's House, William Wirt Winchester Memorial Hospital

are treated in sanatoriums, as distinct from hospitals, because they are up and about and apparently as well as other individuals and able to seek diversion and employment to pass the time.

The site is bounded on the north by a railroad cut of the Berkshire Division of the New York, New Haven and Hartford Railroad, the tracks of which are about twenty-seven feet below the highest grade level of the site. If the service or basement and first floor of the main group of buildings could be kept down to certain levels, a railroad siding for cars delivering fuel direct to bunkers, and other supplies direct to a delivery platform, was possible. This was later accomplished in the planning by starting the siding a considerable distance west of the power house and using excavated material for embankment fill.

The indicated location for the main entrance was toward the east and the contours and points of the compass determined the disposition of the patients' quarters, and these two factors created a natural division at the entrance between the administration and service department on the one hand and the patients' quarters and medical department on the other.

With the above explanations, the reasons for many features of the planning will be apparent. A brief outline of some of these features follows:

Accommodations for one hundred and thirty-six patients on the south front in wards and rooms of varying sizes, including one, two, three, eight, and nine-patient units, to suit different stages of the disease as well as the diverse characteristics of the patients.

Four separate dining rooms for patients near their rooms and wards with service from diet kitchens adjoining.

Service to the diet kitchens by means of a service corridor in the basement (which connects all of the main group of buildings) and electric dumb waiter from the main kitchen on the third story of administration building to the service corridor.

Medical examining rooms, throat treatment rooms and dental rooms in ward wings.

A complete operating suite and laboratory suite in the west ward wing well removed from the service wing.

An X-ray department and a drug department in the basement of administration building adjacent to the main elevator.

Storerooms of various kinds at the service end of administration building basement.

A diet kitchen in service wing for instruction in dietetics, of pupil nurses.

Quarters for internes with sitting rooms, etc., are on the second floor in the central part of administration building.

Male helps' quarters are provided on the second and the third floors in central portion of administration building.

Female employees are housed at the north end of service wing in both second and third stories.

Nurses' Home, accommodating twenty-six nurses, with sleeping porch accommodations for a large proportion of these. It was felt that many of the nurses might be cured tuberculous patients.

A physician's cottage for the physician in chief of the institution.

A gardener's cottage, which also serves as a lodge at the main entrance gates.

A power house containing a complete isolated plant consisting of high pressure boilers, engines and generators, refrigerating machinery, ice-making room, incinerator, etc., and above this, a complete laundry suitable for a three or four hundred patient institution.

The matter of water supply and fire protection was taken care of by the installation of a two hundred and

fifty thousand gallon concrete reservoir below the ground near the power house, to which level the water supplied by the New Haven Water Company flows by gravity. Pressure is obtained by means of a seventy-five thousand gallon elevated tank placed considerably to the west of the main group of buildings. For service purposes, only twenty-five thousand gallons of this supply can be drawn, the balance remaining as a constant supply to the eight-inch fire mains extending throughout the grounds and to the sprinkler system which is an extension of these fire mains and which covers all of the buildings except the physician's cottage and the gardener's cottage. The tank

supply is augmented by a heavy fire pump of ample capacity. While the power house and some of the service portions of the administration building are of fireproof construction, the balance of the buildings are of non-fire-proof construction. Despite this fact a remarkably low rate of insurance was obtained through the installation of the complete sprinkler system.

The heating is by means of pumped hot water which is heated by the utilization of all exhaust steam. Direct radiation is used throughout.

There is a system of exhaust ventilation from certain rooms

such as toilets, kitchens, serving rooms, operating room, etc. The ventilation of wards, patients' rooms and corridors is by means of open windows.

Materials used for the exterior are local selected red brick of good color with granite water table and Indiana limestone sills and key blocks. Wood is used for cornices and columns, and slate for the roofs.

The interior walls are finished with wood fibre plaster on plaster board. Door frames and base, except in nurses' home, dormitories and physician's cottage are of metal. For the finished floors, hard red tile was used in the machinery rooms, main kitchen and bakery, serving rooms, etc.; terrazzo in the laundry, diet kitchens and dormitory washrooms, and encaustic tile in the bath and toilet rooms and operating suite. The balance of the floors in corridors, patients' rooms, etc., are of narrow comb-grained Douglas fir covered with battleship linoleum, the entire area of which is cemented to the floor with waterproof cement. The ceiling heights are not extreme, an attempt having been made to create a homelike, rather than an institutional atmosphere.

The service and many of the administrative features in connection with the planning of the hospital were evolved by Dr. Simon F. Cox, superintendent of the New Haven Hospital.

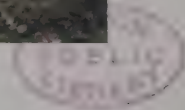


First Floor Plan of Nurses' Home



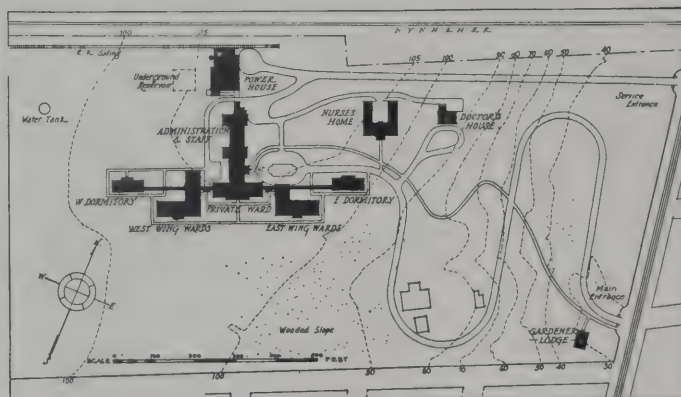
DETAIL OF ENTRANCE PORTICO

WILLIAM WIRT WINCHESTER MEMORIAL HOSPITAL, NEW HAVEN, CONN.
SCOPES & FEUSTMANN, ARCHITECTS





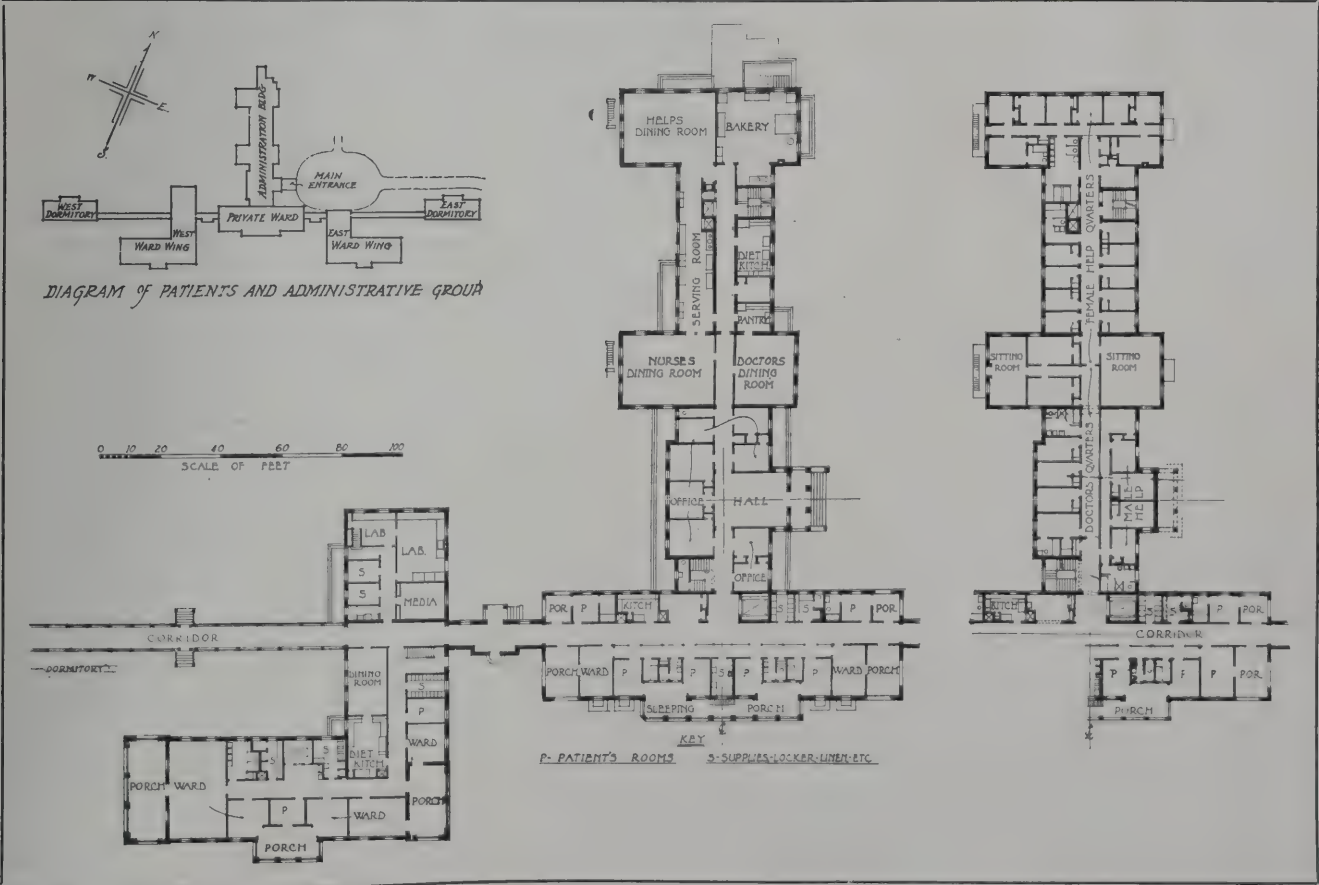
GENERAL VIEW OF WARD BUILDINGS FROM THE SOUTH



VIEW OF ADMINISTRATION BUILDING FROM ENTRANCE DRIVE
 WILLIAM WIRT WINCHESTER MEMORIAL HOSPITAL, NEW HAVEN, CONN.
 SCOPES & FEUSTMANN, ARCHITECTS



VIEW OF SOUTH FRONTS OF PRIVATE AND EAST WARD WINGS



FIRST FLOOR PLAN OF ADMINISTRATION BUILDING AND WARD BUILDINGS

SECOND FLOOR PLAN OF ADMINISTRATION BUILDING

WILLIAM WIRT WINCHESTER MEMORIAL HOSPITAL, NEW HAVEN, CONN.
SCOPES & FEUSTMANN, ARCHITECTS



SOUTH SIDE OF OPEN DORMITORY WING

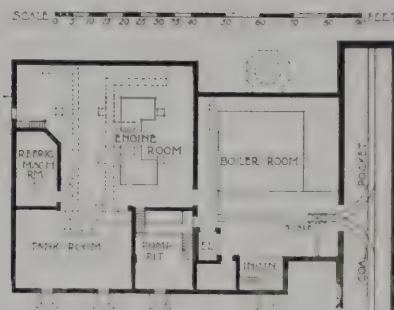


GENERAL VIEW OF NURSES' HOME

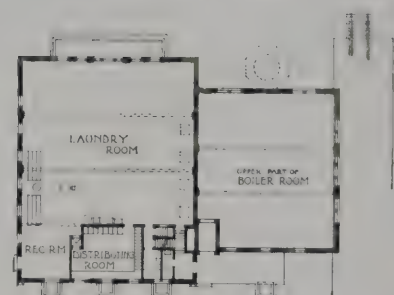
WILLIAM WIRT WINCHESTER MEMORIAL HOSPITAL, NEW HAVEN, CONN.
SCOPES & FEUSTMANN, ARCHITECTS



LAUNDRY AND POWER BUILDING



BASEMENT PLAN



FIRST FLOOR PLAN



ENTRANCE SIDE OF OPEN DORMITORY WING

WILLIAM WIRT WINCHESTER MEMORIAL HOSPITAL, NEW HAVEN, CONN.

SCOPES & FEUSTMANN, ARCHITECTS



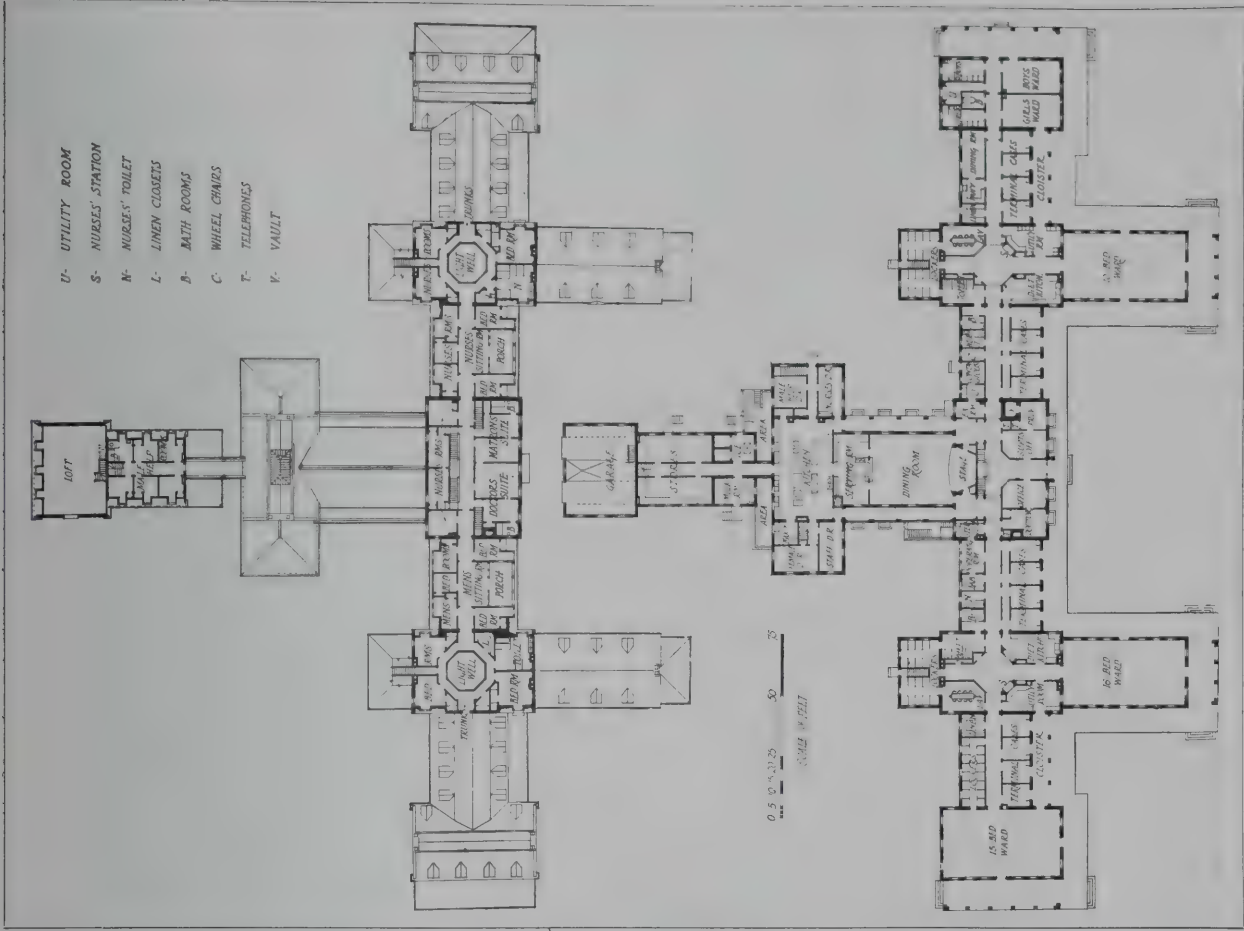
GENERAL VIEW OF SOUTH OR MAIN FRONT



DETAIL OF ADMINISTRATION UNIT

NORFOLK COUNTY TUBERCULOSIS HOSPITAL, BRAINTREE, MASS.

HAROLD FIELD KELLOGG, ARCHITECT



FIRST AND SECOND FLOOR PLANS



VIEW OF REAR SHOWING CORRIDOR CONNECTING
ADMINISTRATION AND SERVICE DEPARTMENTS

NORFOLK COUNTY TUBERCULOSIS HOSPITAL, BRAINTREE, MASS.
HAROLD FIELD KELLOGG, ARCHITECT



VIEW OF SOUTHEAST END SHOWING CHILDREN'S UNIT



VIEW OF SOUTHWEST END SHOWING CLOISTER OUTSIDE TERMINAL ROOMS
NORFOLK COUNTY TUBERCULOSIS HOSPITAL, BRAINTREE, MASS.
HAROLD FIELD KELLOGG, ARCHITECT



DINING ROOM AND ASSEMBLY HALL



TYPICAL WARD INTERIOR



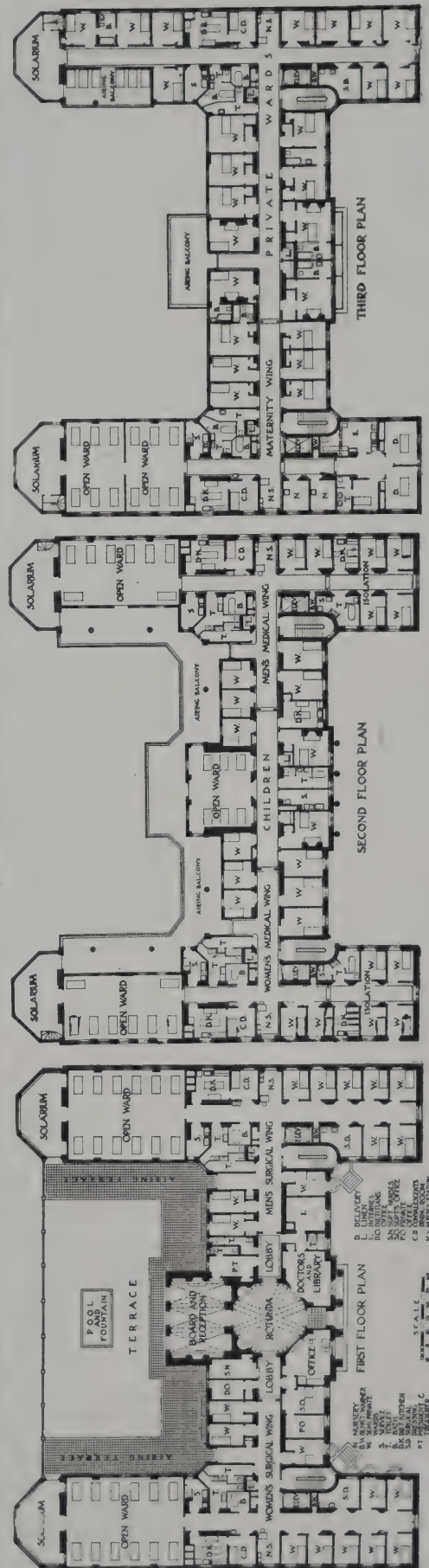
ENTRANCE HALL LOOKING TOWARD WARD CORRIDOR

NORFOLK COUNTY TUBERCULOSIS HOSPITAL, BRAINTREE, MASS.

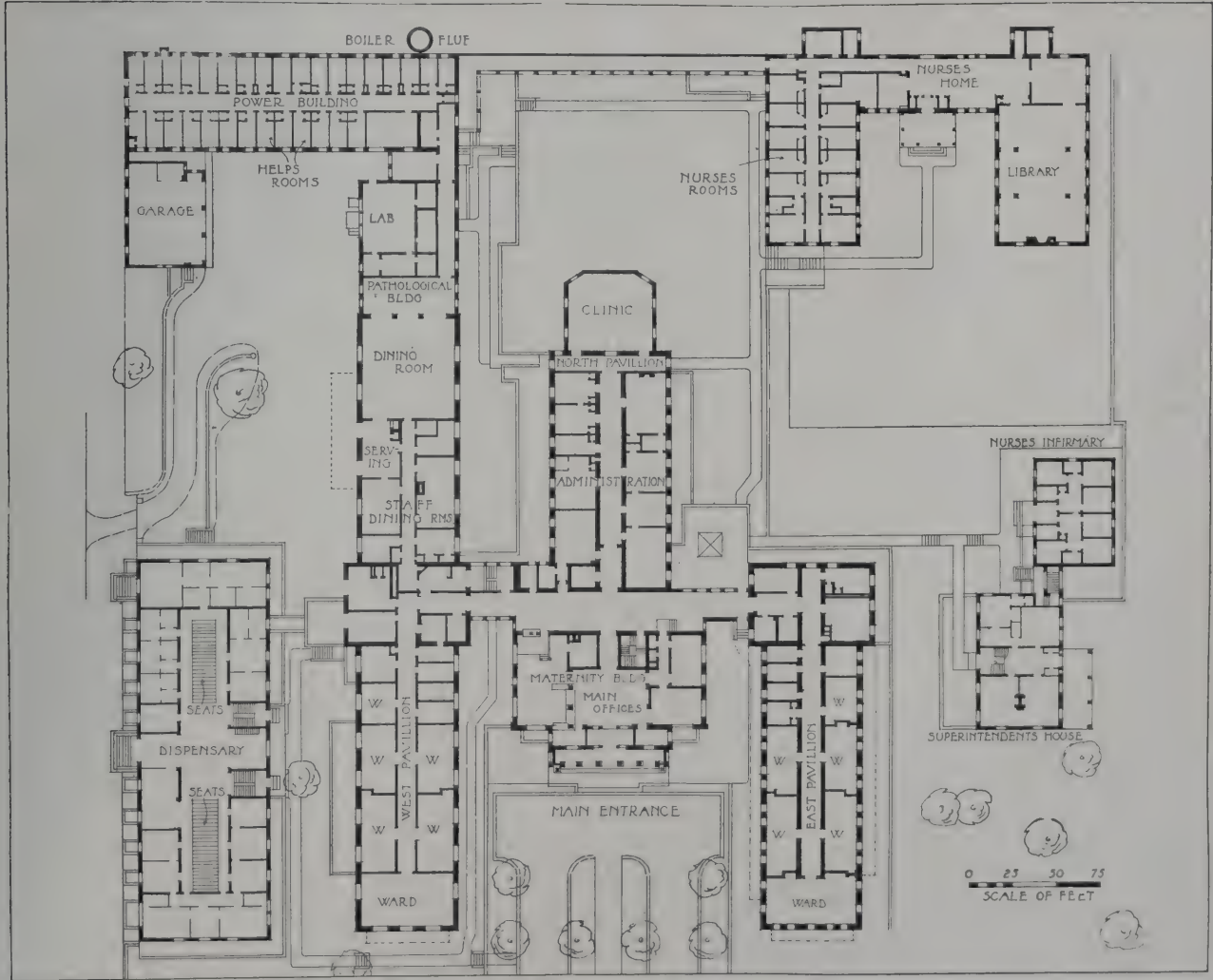
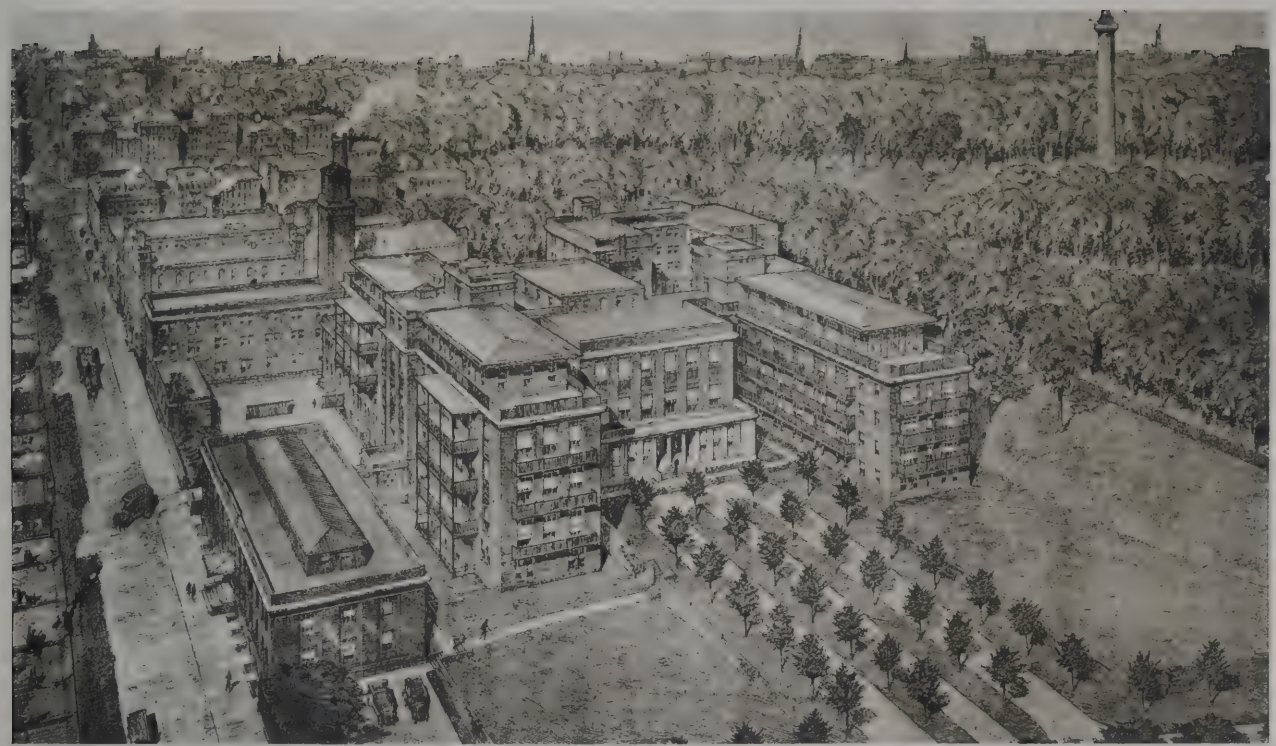
HAROLD FIELD KELLOGG, ARCHITECT



PLANS OF
FIRST AND SECOND FLOORS
(WARD WINGS ARE SIMILAR ON BOTH FLOORS)
TUBERCULOSIS HOSPITAL OF THE CITY OF CAMBRIDGE, MASS.
CHARLES R. GRECO, ARCHITECT



NORTH FRONT OF MAIN BUILDING, SALEM HOSPITAL, SALEM, MASS.
HAVEN & HOYT, ARCHITECTS



GENERAL PERSPECTIVE VIEW AND FIRST FLOOR PLAN
BROOKLYN HOSPITAL, BROOKLYN, NEW YORK
LORD & HEWLETT, ARCHITECTS



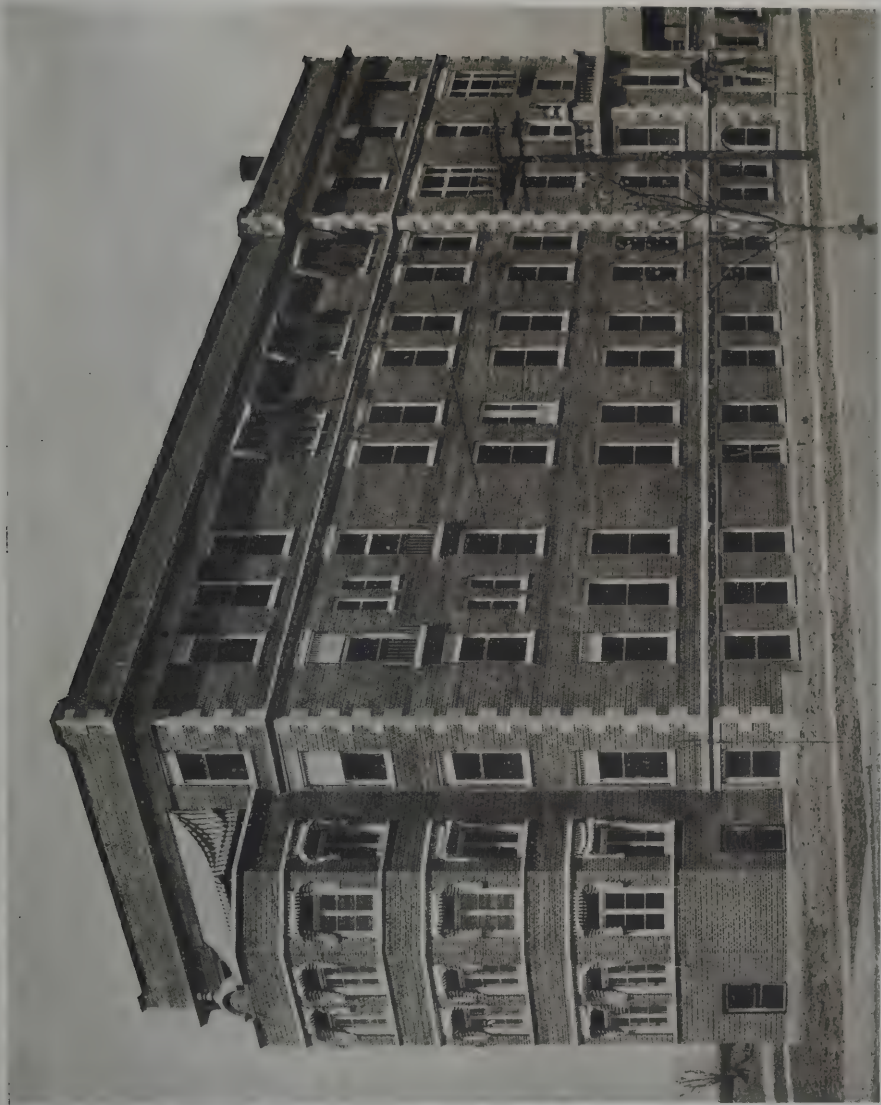
GENERAL VIEW OF ENTRANCE COURT



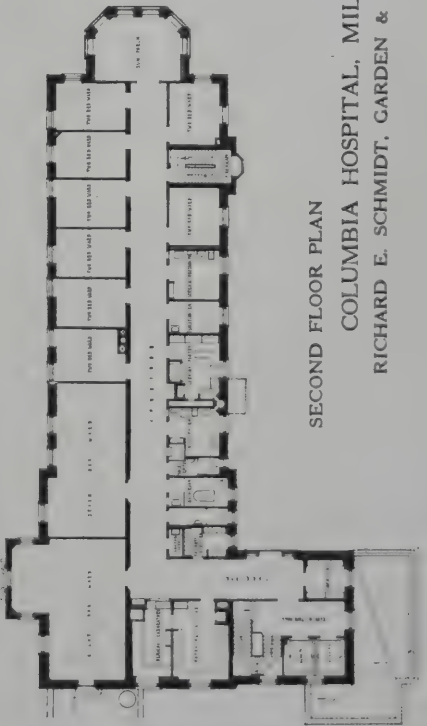
PLAN AND DETAIL OF WARD PAVILION
BROOKLYN HOSPITAL, BROOKLYN, NEW YORK
LORD & HEWLETT, ARCHITECTS



VIEW SHOWING OPEN FIRE STAIRS



GENERAL VIEW OF ENTRANCE FRONT



SECOND FLOOR PLAN



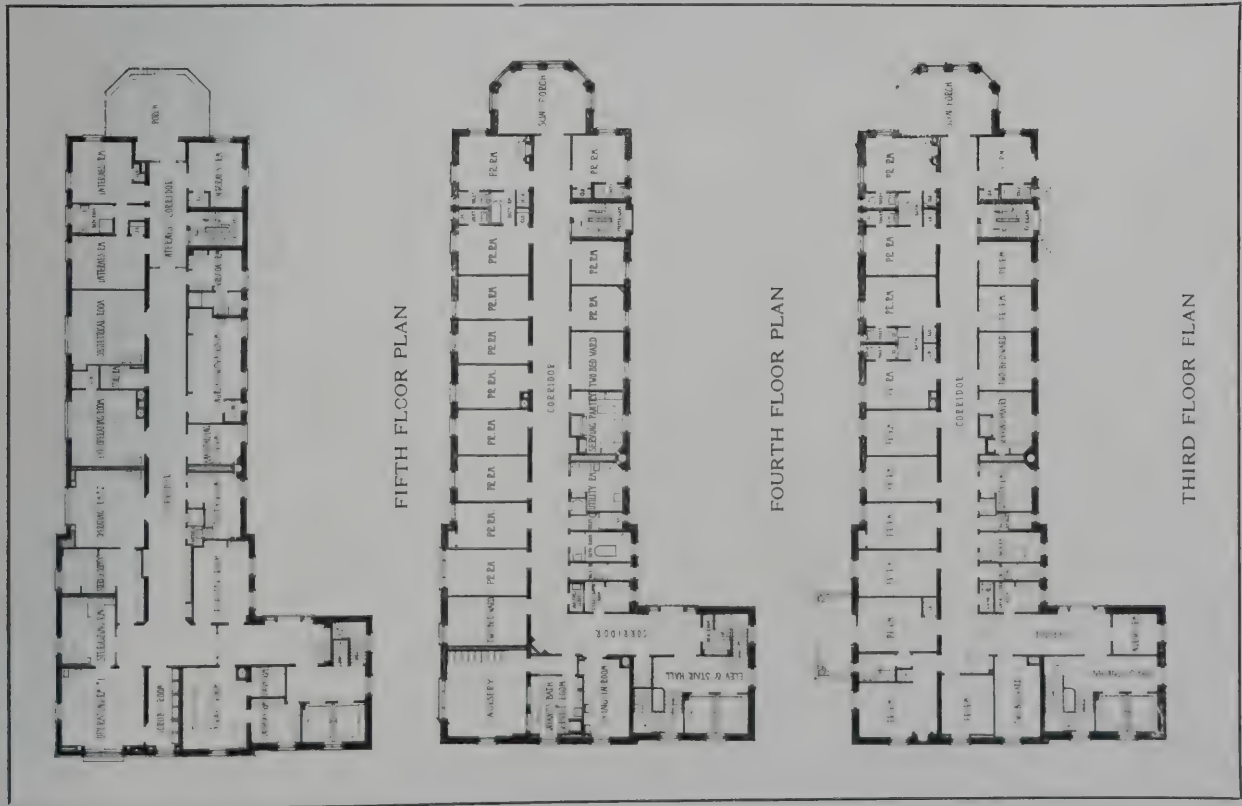
FIRST FLOOR PLAN

COLUMBIA HOSPITAL, MILWAUKEE, WIS.
RICHARD E. SCHMIDT, GARDEN & MARTIN, ARCHITECTS



DETAIL OF MAIN ENTRANCE

COLUMBIA HOSPITAL, MILWAUKEE, WIS.
RICHARD E. SCHMIDT, GARDEN & MARTIN, ARCHITECTS





GENERAL VIEW OF ENTRANCE FRONT



BASEMENT FLOOR PLAN

FIRST FLOOR PLAN

TYPICAL FLOOR PLAN

NURSES' HOME, COLUMBIA HOSPITAL, MILWAUKEE, WIS.

SCHUCHARDT & JUDELL, ARCHITECTS

Description of Hospitals Illustrated in the Plates

NORFOLK COUNTY TUBERCULOSIS HOSPITAL, BRAINTREE, MASS. PLATES 86-89. This is one of the first tuberculosis hospitals to be erected in Massachusetts under the recent State law which superseded an earlier one directing each city of more than ten thousand population to erect and maintain a hospital, and made the counties responsible for erecting the buildings, the cost of the service to be charged proportionally to the cities and towns. This centralizes the work of caring for sufferers from the disease and enables more economical administration to be effected. In this State the incipient cases are cared for in the State sanitoriums, so the county buildings are equipped to treat moderately advanced and advanced cases. Where municipal hospitals exist, terminal cases are treated locally.

The Norfolk County Hospital is designed for both moderately advanced and terminal cases. The accommodations in wards and rooms total seventy-five beds and in an emergency one hundred patients could be cared for. The building is of the pavilion type of plan and is composed of twenty units arranged with easy access from one to the other but separated by masonry walls and fire-doors. All the wards and private rooms are on the first floor so that the nursing is greatly simplified. The plan is divided into three main divisions, the administration portion, with offices and nurses' and employees' quarters; the service portion, with kitchen, storage and dining rooms for patients and staff; and the nursing portion which is supervised from two octagonal centers, the wards and private rooms radiating from them. These central nurses' stations enable efficient service to be given by a small number of nurses. The terminal cases are taken care of in private rooms and a separate corridor serving them eliminates the noise of traffic in the main corridor. Every patient can be accommodated on the porches, doors without thresholds leading to the terraces from all rooms and wards. Dormer window lighting is used in all rooms and wards where covered porches occur, so that the lighting of the interior is not sacrificed. The general exposure is to the south, and the plan is so arranged that all wards and rooms have either an east, south or west outlook.

An operating room is provided and adjoining it a sterilizing room and a laboratory. There is also an examination room and contagious ward with separate service, and isolated from the remainder of the hospital.

The kitchen is on the ground floor and well ventilated. The service is through a serving room to the patients' central dining room, which is operated on the cafeteria principle. The staff and employees' dining rooms are in groups at either side of the kitchen, and beyond them in a separate unit, are large store-

rooms and a fireproof garage for five cars. Meals for patients confined to bed are served from the diet kitchens in connection with each ward. These rooms are fully equipped with warming devices, sinks, cupboards and refrigerators, the latter supplied with brine from the central ice plant in the basement which is capable of making four tons of ice daily. All the cooking is done by gas or electricity.

Special attention was given to the details of the lighting system. The corridors are equipped with double acting semi-indirect fixtures, white lights being used for the evening and blue for night lights, the bowl being so adjusted that all rays of light strike above the door transoms. In the wards and patients' private rooms, green shaded inverted fixtures protect the patients from glare, and at night the wards are lighted by blue lights set in the floor. The electric silent call system for nurses is installed with provision for immediate service because the signal light can only be released at the patient's bedside. The operating room is lighted from concealed bulbs and reflectors so that the illumination is uniform and no shadows interfere with the surgeon's work.

An effort has been made to create a cheerful, home-like character in the architectural treatment, to offset any semblance of the institutional in the mind of the patient, for the tubercular patient is easily influenced by his surroundings, and contentment of mind is a factor that cannot be overlooked.

CAMBRIDGE TUBERCULOSIS HOSPITAL, CAMBRIDGE, MASS. PLATE 90. This building is designed for the treatment of the city's advanced cases of pulmonary tuberculosis, the patients being accommodated in general wards and private rooms. It contains also the administration offices for the general hospital detail and the supervision of a number of open dormitories located at the rear of the property and used for the treatment of incipient cases.

The preparation of food for patients and employees and the laundry work connected with the institution are done on the first floor. The domestic help is quartered in the third floor of the central building, these rooms being lighted by windows on the sides and rear of the high parapet.

The wards in each of the wings are arranged with diet kitchens. Open-air terraces in addition to the sun rooms provide space for bringing all the beds on the first floor into the open air if desirable and doors throughout the building are sufficiently wide to make the removal of beds easy. The building is heated by steam, and natural ventilation is depended upon in all the rooms because of the building's high location and separation from other buildings.

The exterior is constructed of water struck brick and trimmed with concrete stone. The interior is finished in brown ash with painted plaster walls.

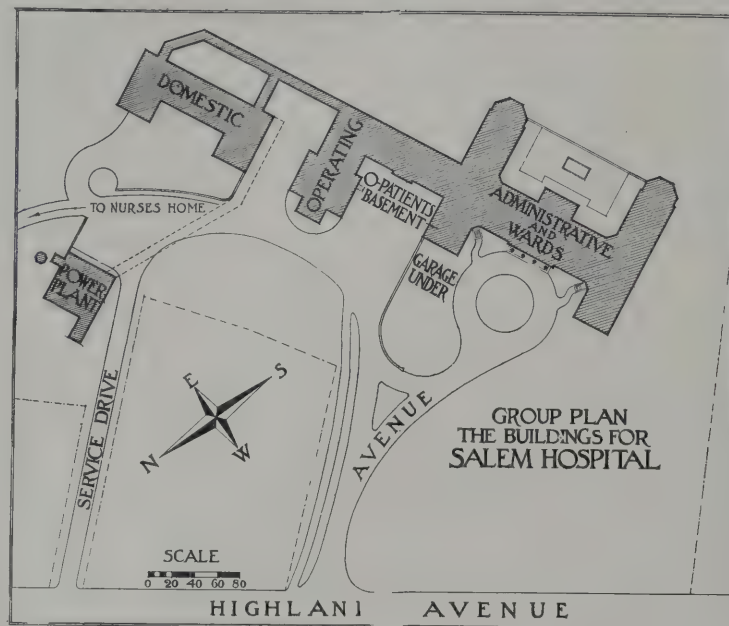


Perspective View From the West Showing Relation of Buildings in Salem Hospital Group

Haven & Hoyt, Architects

The floors are of wood covered with battle-ship linoleum. The exterior metal finish is of copper. The total cost in 1915, including the elevator and all the equipment with the exception of furniture, was approximately \$80,000.

SALEM HOSPITAL, SALEM, MASS., PLATE 93. The new General Hospital at Salem, Mass., is located about one mile from the center of the city on a tract approximately twenty-five acres in extent, on high ground commanding extended vistas. Peculiar conditions of the site, at first formidable, were found to have particular advantages; because of them the minor buildings were enabled to be placed below the level of the main hospital and subordinated so that they do not interfere with the fine view of the harbor to the east. The main floor of the operating building is at the level of the basement of the main hospital and the serving room in the second story of the domestic service building is also at this same grade. This facilitates the removal of patients to and from the operating building and the distribution of food through the corridors connecting at this level, and furthermore, confines all noise and confusion incident to this service to the basement level of the main building, where it causes no annoyance to the administration or patients. An automobile shelter accessible from the lower grade at the east of the main hospital building is so concealed under the front lawn as not to betray its presence from the main approach.



The driveway to the service building and the power plant is also removed from the main building and because of the high elevation of the latter, dust and street noises, smoke from the boilers and odors of cooking, are carried away by the generally prevailing winds from the south and west. The power plant with its underground coal pocket is inconspicuously located on lower ground permitting connection with the main group by a

tunnel which also affords facilities for the passage of pipes and wires, rendering them accessible at all times.

Land has been reserved for future growth in the direction of the main thoroughfare to the north, and sites are available for expansion to the south of the connecting corridor sufficient for the distant future. The buildings have been so planned that the power plant and all domestic departments can be readily expanded.

The hospital building faces east of south in order to insure the maximum amount of sunlight on all facades during the greater portion of the year. In conformity with recent tendencies in hospital planning, open-air terraces and balconies are arranged on three sides of the open south court and their favorable position makes them of use throughout the year. They have been carefully devised to interfere as little as possible with the daylighting of the adjoining rooms and are set back as they rise so that direct sunlight, in addition to shelter, may be had on each. This building has a frontage of 185 feet, the east and west

wings are 145 feet deep, and the open court is approximately 60 by 115 feet. All the buildings in the group are of fireproof construction, water-struck red brick being used for the walls and slate for the roofs. There are accommodations for 20 private patients occupying single rooms, 44 semi-private patients in small wards, 20 male ward beds, 20 female ward beds, 19 maternity cases and 11 children's cases, making a total of 134 beds. Rooms are provided in the attic story for the temporary accommodation of nurses, but at such time as the future nurses' home, already designed, is built this space will be available for the internes' quarters, additional patients and other uses.

In the basement is located the out-patient department, the pharmacy, mattress and clothing sterilizing rooms, rooms for the care of ward patients' clothing, the X-ray department, the pathological laboratory, plaster room and space for hydrotherapeutic and zander departments.

The hospital is a combination of the block and pavilion type of plan. The separate buildings provide accommodations for those departments that generally cause annoyance to patients if contained in the same building with the wards, and the block plan of the main building insures the necessary shelter for the open court that the exposed position of the building demands.

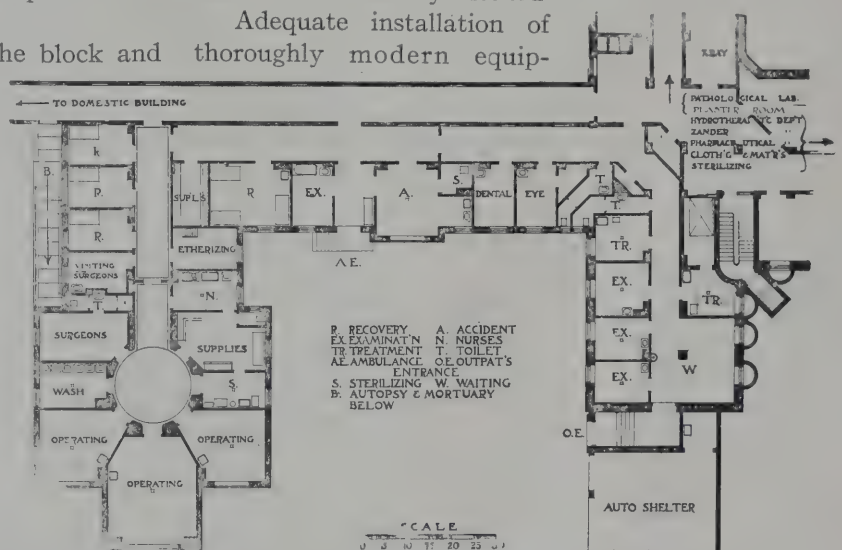
The operating building shows a successful carrying out of a deliberate architectural scheme, as regards arrangement and convenience, seldom seen in hospital planning.

The service building contains, in addition to the working departments, dining rooms for nurses, house officers

and domestics, together with dormitories for both men and women employees. Supplies are received and cared for at the ground level on the second floor and may readily be sent to the kitchen floor above by means of the elevator. The food may be returned to the serving room on the second floor, placed in steam tables until served, or placed directly in heated food carts and distributed by means of the dumb waiters, starting from the basement of the main building to the various diet kitchens where steam tables are provided for its care.

The heating and ventilating system was purposely designed to be simple in its operation. Direct radiation is used generally; ventilation is provided in the open wards, the operating unit, maternity department and nurseries. The high location of the hospital makes ventilation by open windows in other rooms a practical and satisfactory method.

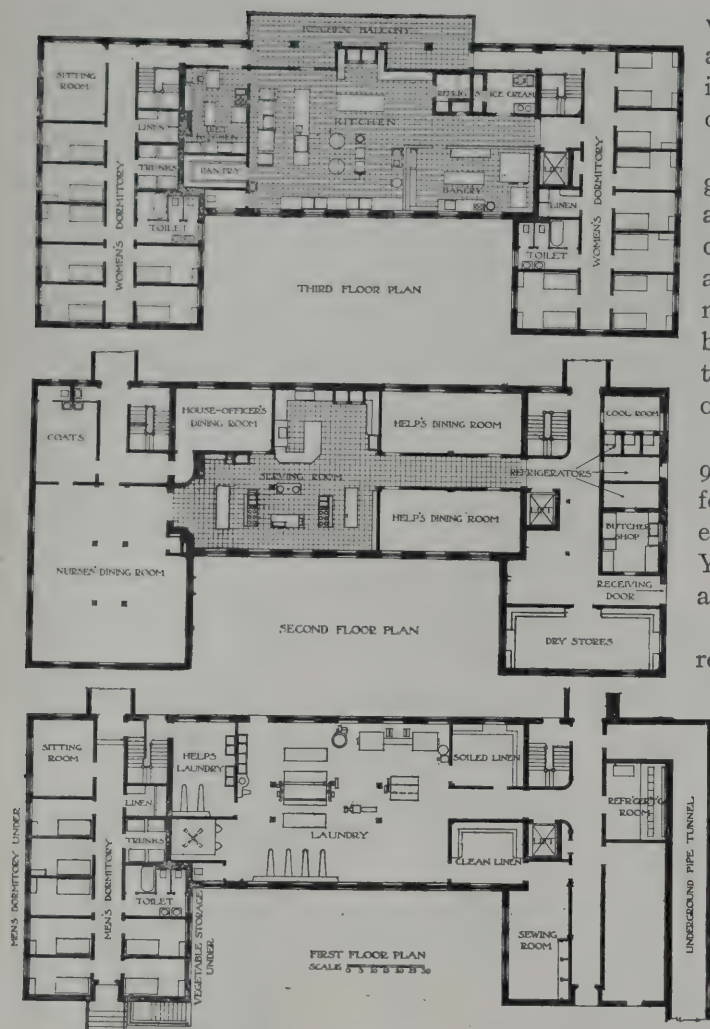
Adequate installation of thoroughly modern equip-



Floor Plan of Operating Building



General View of Operating and Domestic Service Buildings of Salem Hospital
Haven & Hoyt, Architects



Floor Plans of Domestic Service Building, Salem Hospital

ment has been made throughout. Electric light call systems for doctors and nurses are used. Electric elevators of sufficient size to accommodate patients' beds are of the automatic type, thereby doing away with operators. Floors are generally of linoleum, tile or terrazzo with masonry bases. The doors throughout the hospital are of sufficient width to permit the moving of patients in their beds. Each ward has its separate service room, diet kitchen, convalescents' dining room, toilets, bathrooms, blanket and linen warming room and medicine closet. In the surgical

wards and in connection with the private wards, there are rooms assigned for surgical dressings and in the isolation wards there are facilities for sterilizing all dishes used by patients.

In the work of designing the hospital, attention was given to the suggestions from the hospital staff as well as the trustees. During the progress of the drawings, consultations and meetings were arranged with the architects. In this way all suggestions were carefully noted and discussed and much valuable data was brought to bear in developing the plan, and the result to those involved is an extremely satisfactory solution of the problem of the Salem Hospital.

BROOKLYN HOSPITAL, BROOKLYN, N. Y. PLATES 91, 92. Brooklyn's oldest hospital has during the past few years been completely rebuilt on the old site, an elevation overlooking the city and harbor of New York, close to the business section of Brooklyn, and adjoining and forming a part of Fort Green Park.

There are 289 beds apportioned as follows: Private rooms, 38; private (four bed) wards, 54; public, 191; isolation, 6.

The work of the hospital is carried on in a number of buildings, each devoted to particular purposes and connected by corridors to insure efficient service. Large courts are provided for ample light and ventilation. A list of the different buildings together with a brief description of their sub-divisions follows:

Administration Building. This forms a central unit and contains in the basement the X-ray department and on the ground floor the main offices. On the second floor the maternity wards are located, extending into the north pavilion



Detail View of South Court, Showing Airing Balconies, Salem Hospital, Salem, Mass.
Haven & Hoyt, Architects

where the delivery rooms are arranged. The third floor contains private obstetrical rooms and wards, and the fourth floor contains sleeping quarters for female heads of departments.

The North Pavilion, directly adjoining the administration quarters, contains in the basement the drug room, storage rooms and general lecture room and on the first floor, offices in connection with the main administration. The operating suite is located on the third floor and the fourth and fifth floors are given over to internes' quarters.

The East Pavilion on the first floor contains private wards for women and private rooms connected with open-air balconies on each of the other floors with a large solarium on the roof.

The West Pavilion contains ambulance and service entrances in the basement, the southern end being given over to emergency wards and treatment rooms, while the northern end contains the kitchen and helps' dining rooms. The first floor contains the dining rooms for doctors and staff in the northern part, and private wards for men in the southern end. The second and third floors are given over to surgical and medical wards for women

and men respectively and the fourth floor to children.

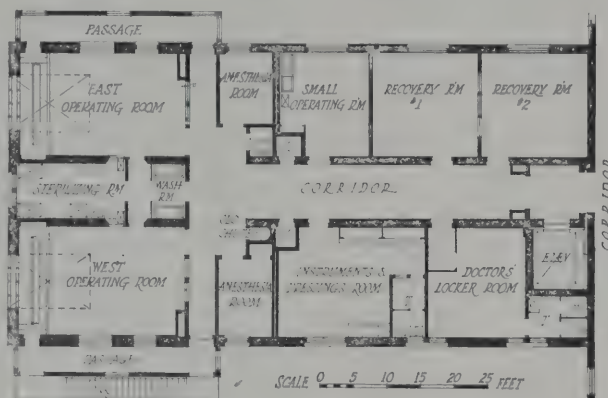
The Nurses' Home contains in the second, third and fourth floors, single rooms for pupil nurses. The basement has a lecture room, diet classrooms, small laundry for individual use and trunk room. The first floor, in addition to the library and reception rooms, has quarters for officers of the training school. The access to the dining room in the west pavilion is had by a covered corridor leading from the nurses' home.

The Power Building is in the northeast corner of the property and contains in the basement, boiler and engine rooms, refrigerator plant, ice plant, vacuum cleaning machinery, water filters and generators. The first floor is given over to the laundry and the second and third floors provide quarters for male and female help respectively, each person being assigned a single room.

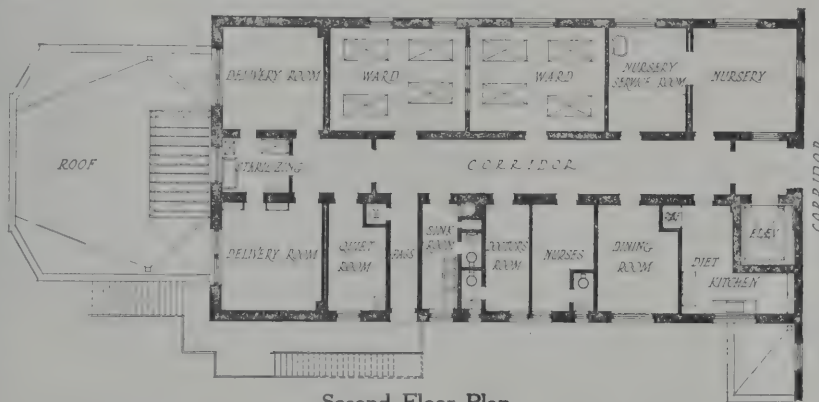
The Pathological Department is contained in a two-story building located between the power plant and the north end of the west pavilion.

The floors in the wards and private rooms are of terrazzo, the joints arranged to come over beams. Countersunk linoleum is used in the centers of the large wards. Dormitory floors of the nurses' home and all of the helps' quarters, laundry and service departments are of cement. Six-inch-square red tile is used for the floors of the main kitchen and diet

kitchens and gray tile for the floors and walls of the operating rooms. All wards and private room floors are supplied with blanket warmers, and the duty rooms with ventilated closets for utensils. The examining sinks have elbow control for the faucets. The silent call system is installed for nurses and the megaphone system for calling doctors. Floor lights are used in the wards for night lighting. They are built in the floor construction to the depth of about 10 inches and are 11 inches in diameter, 8 inches of which is glass, the sides are painted white and a 10-candle power bulb gives sufficient light for the nurses without disturbing the patients.



Third Floor Plan, Showing Operating Suite



Second Floor Plan
Maternity Section in North Pavilion, Brooklyn Hospital, Brooklyn, N. Y.
Lord & Hewlett, Architects

Sufficient balcony and solarium space is provided to enable every patient to be moved out of doors if desired.

The dispensary for out-patients is located on the west boundary of the property with a separate entrance direct from the street so that its operation is carried on independently of the hospital work.

COLUMBIA HOSPITAL, MILWAUKEE, WIS. PLATES 94-96. The ideal of the trustees, the staff, the nursing body and the personnel of Columbia Hospital was perfection of service in their new buildings. This was the mainspring, but the balance wheel was a practical conception of the relative significance of mere building compared with skill in diagnosis and treatment by the personnel and staff. The present group is the successor of an earlier institution, as usual outgrown. The hospital was started in June, 1917, and occupied in December, 1918. The courage shown by the

trustees in starting at that time has been amply justified. The building illustrated is the first unit of a much larger group. This accounts for many otherwise unexplainable points in the plan, most of which will be obvious, however, on comparing the plans of the first unit with the group plan shown on page 161. The exterior is of a sand mould vari-toned red brick laid with a white joint and trimmed with buff Bedford stone. All interior floors and bases are of terrazzo except in the lobby. The door trim throughout is of rolled steel and set flush with the plaster. The plumbing fixtures are of porcelain. Two elevators are installed, one with push button control; the other, car switch. The dumb waiter is electrically operated, with full automatic control. All refrigerators are cooled by means of a carbon-dioxide refrigerator plant, and ice is made for hospital uses. All water is filtered and drinking water cooled. There is a central water sterilizing plant in the power house, which supplies sterile water to utility rooms, etc., and a water distilling apparatus in the penthouse with water piped to the operating room floor and to the laboratory. An electro cardiograph is installed in the ground floor with outlets on the patients' floor. The X-ray department and operating departments are unusually large for hospitals of this size.

In the enlarged scheme the operating department will move to the fifth floor of the new building, the present operating department becoming birth rooms. The laboratory will move into larger quarters, as will also the kitchen, laundry and power plant. The present main entrance will become a side entrance either for ward visitors, for employees, or for the dispensary.

The patient capacity is 67, internes 3, help 16, a total bed capacity of 86 beds. The cost was approximately \$211,031 and the cubic-foot cost \$.3783. These figures are exclusive of architects' fees but include lighting fixtures, hardware and refrigerators.

THE FAULKNER HOSPITAL, a new addition to which is illustrated on page 172, is typical of the manner in which hospitals find expansion necessary as the community which they serve increases in population. This hospital, erected about fifteen years ago by the late Dr. and Mrs. George Faulkner in Jamaica Plain, a suburb of Boston, had in addition to its community work gained a considerable degree of popularity as a private hospital, and in keeping with the growing tendency there developed an increasing demand for treatment of maternity cases. Consequently when

the trustees were called upon to consider the extension of the facilities for the care of patients, it was decided to erect a new ward building to be devoted entirely to maternity cases.

The building has been so planned that the patients' rooms receive a southerly and westerly exposure, while the workrooms are at the rear toward the northwest. On the first floor in addition to a private suite, are two open wards of four beds each, it being undesirable to have a large number of beds in a single open ward of this class.

The second floor is devoted entirely to private rooms, while the third story contains the delivery rooms with their auxiliary accommodations. The location of this department could not be bettered as, with its noises, it is entirely disassociated from and above the patients' quarters, yet easily reached by elevator connection. The floors are rendered sound proof by use of cork insulation, as are also the walls enclosing the nurseries.

The two main floors are each provided with diet kitchens, nurses' workroom, linen closet, toilet accommodation, and a nursery with its service room. A nurse's station is centrally located off the main corridor and the building is equipped with a nurses' electric light call system.

A bay window in the nursery admits a certain amount of actual sunlight, and a projection off the nurses' workroom having outer and inner windows provides for the care of flowers at night, making it possible to admit fresh outer air and isolate flowers from the inside temperature.

In the basement, of necessity, a considerable portion of the area is assigned to housing the domestics, and a diet kitchen primarily for instruction in the nurses' training school also offers excellent opportunity for sterilization and care of the baby milk bottles.

The building is entirely of fireproof construction. Floors in general are of linoleum with masonry bases, except that terrazzo is used throughout the workrooms including the delivery section of the building. The exterior is of eastern, water-struck brick with concrete stone trimmings, and designed in the spirit of the original group.

While this building is designed and thoroughly equipped in the most modern manner for the exclusive use of the intended class of patients, it has been so planned that it is perfectly possible to assign the rooms if opportunity existed, and necessity demanded, to any class of patients that the hospital might admit.

Hospital Design: The Relation of Initial Cost to the Expense of Operation and Maintenance

By LINDLEY MURRAY FRANKLIN

THE initial cost of a building is tangible, easily demonstrated and felt at once, while the cost of maintenance is intangible, difficult to fix and continues during the life of the building. It is obvious that it is economy to spend a certain sum in first cost, once for all, if thereby the interest on this amount can be saved in repairs or labor of administration. As it is so easy to reduce the total estimates for construction and equipment, and as it requires the most thorough knowledge and the most conscientious investigation of the conditions to determine the items which go to make up the cost of maintenance, a proper balance between these two elements is rarely studied and almost never arrived at.

Unfortunately the work of financing the building of a hospital is started before the essential facts are thoroughly understood by those interested in the project. People are naturally so keenly alive to the necessity of caring for the sick and injured in their community, that a campaign to raise a certain sum (fixed by the committee without adequate advice) for a new building is carried on with enthusiasm and is generally successful. A site is frequently purchased before even preliminary plans and an approximate estimate have been obtained.

The requirements of the institution are then carefully studied and an architect appointed who is asked to design a building which shall embody all essential features and any others that he may deem advisable, but the cost is not to exceed the sum raised in the campaign. What usually happens in such cases is that the cost of the building, if built according to the final plans, far exceeds the available funds, and, as the committee is not willing to reduce the size of the building, it is built as cheaply as possible.

How much better it would be to reverse the process. First study the requirements, then obtain the approximate cost, adding fifteen per cent for contingencies, and then proceed with the campaign to raise not only this sum but also an additional amount for an endowment, as the new building is always more expensive to operate on account of being larger than the old one and entailing better treatment of patients.

As it is a fact that people contribute generously toward a building fund but hesitate to subscribe to repairs and general running expenses, should not a hospital be designed and built primarily with the idea of keeping the cost of administration down to a minimum, even if the initial cost is somewhat higher? The interest on the increased cost will be much less than the additional running expense of a poorly designed, cheaply constructed and inadequately equipped building, and this additional expense for maintenance is a factor which increases each year.

If economy of administration is paramount to every other consideration, it is essential that the hospital should be designed to embody only those features which are necessary to the welfare of the institution and no others. This is a difficult thing to do, but it may be accomplished if those who are responsible for the building regard each suggestion and every requirement as a new problem applied to the specific case. Serious errors are made when the requirements are stated merely as modifications of an existing organization and plant instead of basing them on a fresh study of the actual functions necessary to obtain the desired results. A new building provides an opportunity to improve the whole procedure of the hospital, impossible under the old conditions.

To do this the architect must study in detail the organization of the institution; he should know the several duties of the employees, staff, nurses and attending doctors, and he should be familiar with the service, housekeeping and the treatment and care of the different classes of patients. In addition he must take into consideration the changes and growth in administration which are bound to occur when the institution is housed in new surroundings.

There is very little to criticize in the rooms for patients in our modern hospitals, but how frequently we see these buildings designed with utter disregard to the work of the staff, nurses and employees. As the time of the attending and house staff is limited, it is essential that the dispensary, patients' rooms, operating rooms, etc., should be so located that the maximum number of patients may be visited and treated in the shortest time; otherwise, the staff will have to be increased or the patients will suffer. The proximity of the wards to each other, so that at times one nurse may supervise more than one ward; the proper location of toilets, utility and workrooms, and a well laid out kitchen and laundry all tend to efficient service, and that means fewer employees.

All hospital buildings should be built as nearly fireproof as possible, not only on account of the safety of the inmates, but because this type is far more enduring and will require fewer repairs than any other. The additional cost is a good investment.

It is not intended, at this time, to discuss the many details of construction, although it may be said that "hospital construction" has been carried to an excess in many instances. Surely there is no excuse for increasing the cost by designing the nurses' quarters with plaster coves at all re-entrant angles, sanitary base and tile floors, or by covering the walls of the operating rooms with marble or tile unless the repairs and the labor of cleaning will thereby be reduced considerably. An eminent surgeon has stated

that he has performed critical operations in dirty tenement rooms with perfect success and with no fear of infection, as he knew his patient, assistants, and utensils were sterile. It seems far more logical to confine the tile wainscot to such rooms as toilets, pantries, kitchens and "plaster-rooms" where the work is of such nature that walls require constant scrubbing.

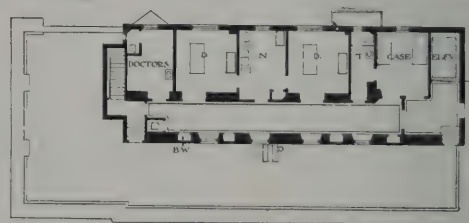
When we know the importance of hospital equipment it is surprising how frequently the consideration of this question is postponed until the construction is well along, resulting in some of the most glaring and

expensive faults of our modern institutions. At the time the preliminary drawings are being studied, every piece of built-in and movable furniture should be carefully considered with a view to the need it is to serve in each specific case and in regard to the cost of operation. If this were done conscientiously vast amounts in the initial cost of the building would be saved and we would not so frequently see apparatus standing idle in the utility rooms, kitchen and pantries which requires almost as much attention as that in constant use.

MATERNITY WING, FAULKNER HOSPITAL, JAMAICA PLAIN, MASS.
HAVEN & HOYT, ARCHITECTS



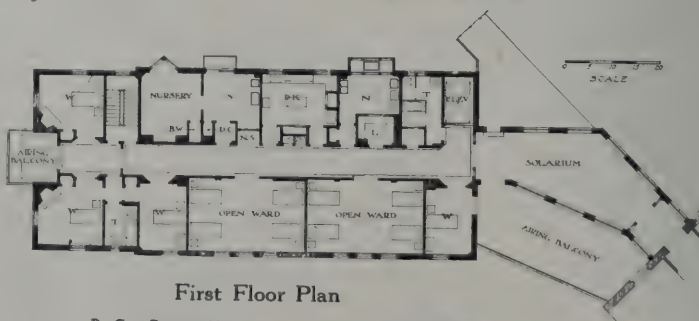
THE plans reproduced here show a special hospital unit devoted to maternity cases only. An innovation and distinct economy of space will be noted particularly on the second floor where splayed door jambs to the wards permit a substantial reduction in the usual corridor width, although providing adequately for the moving of patients in beds—a desirable feature in view of the airing balcony accommodation provided at the westerly end for private suites, and between this building and the administration building for other patients. The thickness of wall needed for the splay affords closet space for rooms.



Third Floor Plan



Second Floor Plan



First Floor Plan

S. Service
D. K. Diet Kitchen

N. S. Nurses' Station
B. W. Blanket Warmer

D. C. Drying Closet
D. Delivery Room

N. Nurses
L. Linen

Mechanical Equipment

By D. D. KIMBALL

*Past President American Society of Heating and Ventilating Engineers
Member New York State Commission on Ventilation*

THE mechanical equipment of the hospital is one of its most important features, for upon the success or failure of the mechanical equipment largely depends the comfort of the occupants, convenience of the staff, and the general efficiency of the hospital. Moreover, the expense of operating and maintaining the mechanical equipment is usually one of the largest, if not the largest, single item in the cost of the conduct of the hospital.

Steam heating versus hot water heating is still discussed. Undoubtedly in the days when only the old gravity steam heating system was available, the hot water system was more satisfactory, and possibly more economical.

The hot water system is subject to the danger of freezing, is slow in heating and cooling off (the forced system being less objectionable in this respect), and it involves the risk of serious damage in the case of a break in the piping, as well as possibly a serious waste of water.

The claim advanced that a modulation of water temperature with the outside temperature may be had with the hot water system is less real and of less importance than represented. This advantage may be approximated in the vacuum or atmospheric steam systems, and with a material reduction in installation and operation costs. The installation costs of the best vacuum steam system will not equal the cost of a forced hot water system, and the latter system is the more complicated.

Direct radiation is generally advocated and used throughout the hospital building, with the possible exception of the operating room in the larger hospitals where there is little or no objection to the operation of a mechanical ventilating plant throughout the heating season.

The direct radiators should be of the hospital type, having a perfectly smooth surface, with sections spaced three inches on centers so that they may be readily cleaned. The radiators should be supported from the wall by means of heavy brackets, there being a space of not less than three inches, and preferably four inches, back of the radiator, and five inches from the bottom of the radiator to the floor. In such an installation the floor is left entirely free and dirt-collecting areas do not exist.

The type of boiler to be used in a hospital plant is entirely dependent upon the size of the institution and the space available. Too often, in small hospitals, use is made of sectional cast iron boilers for heating, with an auxiliary high pressure boiler, sometimes referred to as a steam generator, to provide steam for sterilizing and laundry purposes. Such an arrange-

ment is not to be commended, for it results in the operation of two or more fires at all times and one fire is sufficient for all purposes for the most of the year. Also, the small sectional boilers are not economical in operation. This arrangement results in a complication of piping and equipment. The object of this plan is usually to eliminate the need of a high-grade engineer, in the belief that a janitor can operate the sectional heating boilers and the steam generator. It is a small hospital indeed in which the employment of high-grade firemen will not result in a saving in fuel more than offsetting the increased amount of wages.

In larger hospitals the use of the horizontal fire tube or the fire-box boiler is to be recommended. Only in the largest of plants, that is, those requiring one thousand boiler horsepower, or over, may the use of the water tube boiler be advised, for the fire tube boiler is equally safe, economical and durable, and less expensive.

Automatic stokers may be used for two purposes. First, to eliminate smoke where soft coal may be used to advantage, and second, to save labor, which becomes possible only in plants of one thousand boiler horsepower or over.

Provision for the future growth of the hospital should be made to the extent of allowing space for the later installation of additional boilers, and the size of the main steam lines and of the auxiliary apparatus, heater, etc., should be determined with this factor in mind.

Recently more emphasis has been placed upon a study of the economical operation of hospital plants. But few hospital plants are equipped with devices enabling the determination of the economy of operation, and yet this is a very simple matter and very desirable.

The installation of coal weighing scales, set in the floor, with platform sixty inches long and forty-eight inches wide, will enable the weighing of the coal as fired to the boiler. In larger plants a more elaborate equipment is possible. In addition to the coal scales some device for measuring the feed water as fed to the boiler should be installed. This will make possible a simple calculation by means of which the number of pounds of water evaporated per pound of coal fired may be determined for each day. For a refinement of this determination the temperature of the water fed to the boiler may be either read systematically from a feed water thermometer, or better still, a recording thermometer may be used to record this temperature. The coal also may be analyzed to determine the heating value thereof, and then an

exact determination of the efficiency of the boiler plant may be had.

Where separate costs of the operation of the heating and ventilating plant, laundry, kitchen, sterilizing and electric plants are recorded the division of fuel costs has been arbitrarily made. The installation of steam flow meters would make possible an accurate determination of the cost of steam for each department and provide a means of preventing wastes.

To obtain the best results a plant log sheet should be used, upon which hourly readings should be recorded of the boilers in use, draft pressure, steam pressure, feed water temperature, outdoor temperature, weight of water fed to boilers, coal fired, ash removed, service rendered to the building, men on service in the boiler room, and supplies received and used. A running account of the coal may be included, this showing the coal on hand at the beginning of the day, that received during the day, the amount used during the day, the balance representing that remaining on hand. If an electric power plant is in use, corresponding records should be made of the operating details thereof.

A careful interpretation of the records thus obtained should bring about a marked economy in the operation of the plant. An instance may be cited of a two thousand horsepower boiler plant which, previous to the keeping of such records, had operated at fifty-one per cent efficiency. At the end of a year's use of apparatus and records as described the plant was operating at seventy-one per cent efficiency.

The piping system of the hospital is most complicated because of the varied service demanded. There must be, first, the high-pressure piping system operating at the maximum pressure required, which would be that required by the engine if a lighting plant is included, or that required by the laundry and sterilizer system if no lighting plant is included. Ordinarily the hospital lighting plant is operated at eighty to one hundred pounds steam pressure and this would thus be the boiler pressure. The sterilizers should then be provided with an independent system of piping conveying steam at approximately sixty pounds pressure. The pressure required for the operation of the laundry apparatus is the same, but usually the laundry apparatus is so located that a separate system of piping may well be used therefor, and this is desirable in any case. The kitchen apparatus requires steam at approximately thirty to forty pounds pressure and should, therefore, be on a separate system of piping. The heating pressure, customarily two and one-half pounds, involves necessarily a separate system of piping. Each system is supplied with steam directly from the boiler header through an automatic pressure reducing valve.

Automatic temperature regulation fails to receive proper recognition only because a number of cheap

devices have been used for the purpose and many cheap installations have been made.

There are now available two or three systems free of rubber diaphragms and similar causes of failure, which may be counted upon to give accurate and lasting service. The use of such a system prevents overheating and results in marked economy of fuel.

In every plant steam and hot-water pipe covering is freely used, but the use of the highest grade materials is not as common as it should be. The use of the highest grade covering, which is naturally the most expensive, is amply warranted by the increased saving of fuel resulting.

The use of sheet metal ducts for conveying air in the ventilating system is to be recommended in preference to the use of masonry ducts and flues, despite the fact that the sheet metal ducts cost slightly more. The sheet metal ducts are cleaner and involve less resistance to the movement of the air.

The use of air washers provides for a supply of clean air wherever ventilation is required, and this alone should be sufficient to assure their use, especially within congested districts where ventilation is desired.

The ventilation system of the hospital may vary in its extent. It may consist merely of exhaust fan ventilation for the laundry, kitchen, toilet rooms, diet kitchens and other service rooms, which should be divided into separate systems for laundry, for the general kitchen, for the toilet and service rooms, and for the diet kitchens. This smallest amount of ventilation may be supplemented by an exhaust fan system of ventilation for the large wards, and to this may be added a fresh-air supply fan system for the wards and important patients' rooms.

The extent and nature of this equipment must be dictated by the nature and location of the hospital. A hospital located in a rural district manifestly requires less artificial ventilation than one located in a congested city district. The author believes that a complete supply and exhaust system for all of the larger patients' rooms is amply warranted in the latter case, for ventilation by natural means cannot be assured in the case of a hospital surrounded by high buildings, particularly on days of dull or stagnant atmospheric conditions, and the opening of the windows often subjects the patients to the annoyance of noise, dust, odors and drafts.

In connection with the plumbing equipment frequently resort is had to standard plumbing fixtures, with little consideration of the specially designed fixtures and equipments which several manufacturers make for hospital work.

For the drainage system wrought iron pipe is mostly used. For the cold water distributing mains galvanized iron or steel pipe is largely used. A more durable pipe is the lead-lined iron pipe, which costs possibly twice as much as the galvanized iron pipe.

For the hot water piping system galvanized iron or steel pipe is largely used, but this should never be, inasmuch as it is short lived. The gases liberated in the hot water attack and rapidly destroy the iron and steel pipe. Brass pipe is much more durable than galvanized iron or steel pipe, but is very expensive. For this work, also, the lead-lined iron pipe will be found quite as durable as the brass pipe and about one-third less expensive.

In general, the hot water supply is furnished by means of large storage tanks containing steam coils. Considered from all standpoints, this is the best means. It provides for an ample storage of hot water and eliminates the sudden demands on the boiler caused by instantaneous heaters having no storage capacity, or by the steam and water mixing valves. Such instantaneous heaters and local mixing valves make necessary the installation of sufficient boiler capacity to provide steam not only for heating and other hospital purposes, but for heating the water to the extent of the maximum instantaneous demand, while in the case of the storage heaters the peak, or maximum load on the boilers, is lessened because the heating of the water may be accomplished through a longer period of time.

Incinerators are generally used in all large hospital plants. They should be of the high-pressure pattern and of ample capacity. A single large incinerator located in the basement is usually found more satisfactory than the smaller incinerators distributed about the building, because of the fact that the smaller incinerators may not economically be operated continuously at a sufficient temperature to destroy all refuse matter and garbage without offensive odors or smoke.

Nearly all large hospitals, that is, institutions costing \$250,000, or more, have their own electric power plants. No institution or type of building has greater warrant for the installation of such a plant than the hospital. It has the longest period of heating of any type of building and the greatest possible use for the exhaust steam from the engines. The exhaust steam may be used for heating the building, for heating water, and it may be used to a large extent for drying purposes in the laundry. It may also be used in refrigerating plants of the absorption type. The latter has the special advantage of making use of the exhaust steam at a period of the year when a considerable portion thereof could not otherwise be used. The large amount of hot water required in the hospital also provides for an unusually extensive use of the exhaust steam during the non heating season.

The heating demands of a hospital will be found to be three to four times greater, as related to boiler capacity and fuel consumption, than the demands for electricity. The installation of the electric power

plant will not increase the boiler capacity required or the fuel consumption during the greater portion of the heating season. The additional amount of service required because of the installation of the electric plant is very small. In very small hospitals no extra service is demanded, in medium-sized hospitals one extra man may be required, and only in the largest hospitals will two or three additional men be required.

Usually the installation of an electric power plant will pay for itself within three to five years, including proper allowances for interest and depreciation. The extra cost of service is largely offset by the increased economy in the operation of the heating plant because of the higher grade of service employed.

Protection against interruption of service is quite as great in the case of street service. In connection with over fifty isolated plants designed by the author no interruption of service has ever occurred and some of these plants have been in service twenty years.

It is an interesting fact that of the thirty-one hospitals on Manhattan Island, which have one hundred beds or more, seventy-eight per cent of them have their own electric lighting and power plants. Of the remaining number several are city installations and the policy of the City of New York, which is believed to be largely influenced by political motives, is against the adoption of isolated plants in city institutions.

It may be asserted that in no other department of hospital administration are the losses and wastes so great as in the maintenance and operation of the heating, power and mechanical equipments.

The ability of the operating engineer (and the ability of his assistants) and the efficiency and economy of the plant go absolutely hand in hand. The employment of cheap engineers and firemen inevitably means high fuel, water and repair bills and an increased depreciation of the plant.

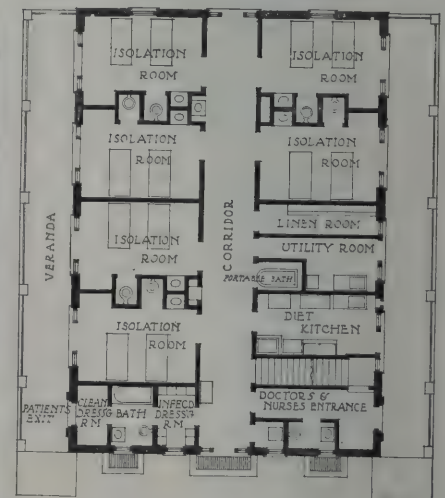
The best efforts of the consulting and operating engineers may fall far short of the best attainable if the building committee or architect so reduces the amount available for the installation of the mechanical equipment that the best materials may not be used, or to such an extent that devices to determine the economy of the plant's operation must be omitted. The use of cheap valves, pipe and other materials will result in constant annoyance and high repair bills. The use of cheap steam and hot water pipe covering materials will result in an excessive waste of heat, which may be neither detected nor prevented. The elimination of coal scales and boiler feed water measuring devices will surely result in a low boiler plant efficiency. Elaboration in the mechanical equipment is to be avoided by all means, but the essential requirements may not be ignored without involving a continuous and serious expense.

Isolation Building of the Hurley Hospital, Flint, Michigan

DAVIS, McGRATH & KIESSLING, ARCHITECTS



View of Corridor Showing Nurse's Station



First Floor Plan

This plan shows a complete and well arranged isolation building for twelve patients. Each ward is an independent unit, having its own toilet facilities and exit to outside terrace. A portable bathtub provides bathing facilities. The second floor is given over to a nurses' sitting and dining room, together with three nurses' rooms, a small kitchen and maid's room. A separate entrance gives access to this floor. The plan was developed in collaboration with Dr. S. S. Goldwater.

The Carson C. Peck Memorial Hospital, Brooklyn, N. Y.

LUDLOW & PEABODY, ARCHITECTS

DEVELOPMENT of hospital planning and equipment for a number of years has been along lines of greater sanitation, specialized equipment, and above all, interior construction and finish carried almost to a point of barrenness with flat surfaces and rounded angles in fear of the deadly lurking germ. But in this great movement for sanitary conditions, the psychological effect of surroundings on the patients has in many cases been overlooked. Some observers of modern hospital facilities claim too great stress has been laid on sanitation and that, as a result, many effects of a depressing nature have been created. The hospital building should be constructed and equipped so as to be easily kept clean, but above all else it should make an appeal to the patient through its restful character, so that the days of convalescence may be as cheerful and comfortable as possible, thereby aiding in rapid recovery. There is now being evidenced

a keener appreciation of the necessity of this dual viewpoint. It has been pointed out that hospital buildings have been made unduly expensive by the employment of tile and marble floors and wainscotings, with coved intersections of walls and ceilings in departments where little value was obtained, that glistening white surfaces and furniture have been over-rated from a sanitary standpoint and that in addition to creating a chilling and depressing effect on the patients, their reaction on the physicians and nurses is not such as to promote harmonious and restful working conditions.

The Carson C. Peck Memorial Hospital recently erected in Brooklyn, N. Y., is an interesting example of the application of some theories which a short time ago would have been held quite contrary to accepted hospital practice. The underlying thought in the design of this building was that it was to be made a



General View of Facade From Approach



View in Entrance Lobby

"home for the sick" rather than a "hospital." The usual blank sterility of hospitals has for this reason been studiously avoided. Tastefully stained wood trim and doors for all rooms occupied by patients, oak floors toned to a pleasant light brown, washable window curtains of quaint and dainty design, rugs on the floors, and pictures on the walls have been used with the purpose of bringing cheer and comfort to the patients under treatment. The rooms are furnished with bedsteads attractively colored and with other furniture of oak or mahogany. Large windows are provided everywhere to give maximum sunlight. The toning of the walls is a cheerful sunlight buff. The solariums at the ends of the building have large glazed openings, and the porches on the rear are approached from the adjacent bedrooms by wide case-ment windows, which allow beds and wheel chairs to be rolled directly from the rooms on to these porches, which not only

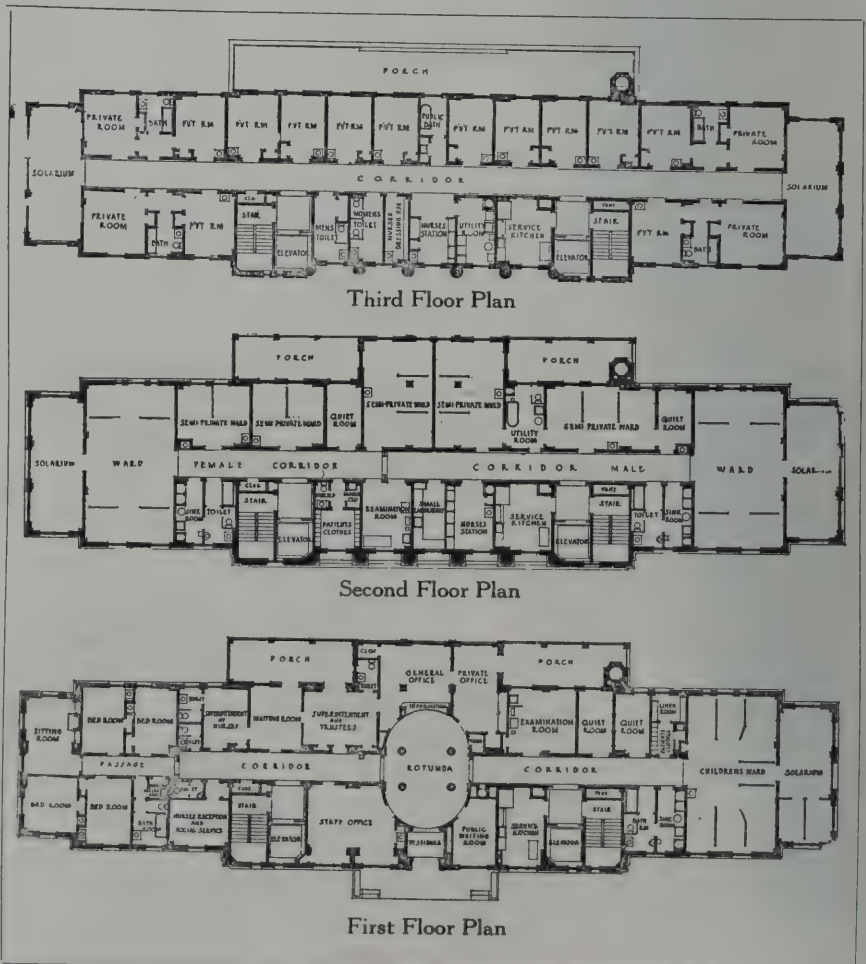
receive full southern sunlight, but look over a stretch of many miles of Brooklyn toward the bay.

Meals are served to the patients, not only in steam-heated trucks, to maintain the warmth of the food, but on dainty crockery of many different designs, so that each patient may have the anticipatory pleasure of a changing appeal to the mind.

The lighting of each private room and of every bed in the semi-private wards is by means of a fixture slightly above and directly back of the patient, so that no disturbing light will fall in the patient's eyes, but will be directed to the place needed for reading or for services to the patient.

A large number of the rooms are for individual patients. Some are semi-private with two or three beds in a room and there are several wards which contain six to eight beds. Wherever there is more than one bed in a room, screens have been placed between the beds, so arranged with a lower metal panel and glass above, that the patients lying in bed cannot see one another and yet the nurses can have full surveillance of the room. In addition to this, provision is made so that curtains can be drawn around any particular bed when the patient desires absolute privacy.

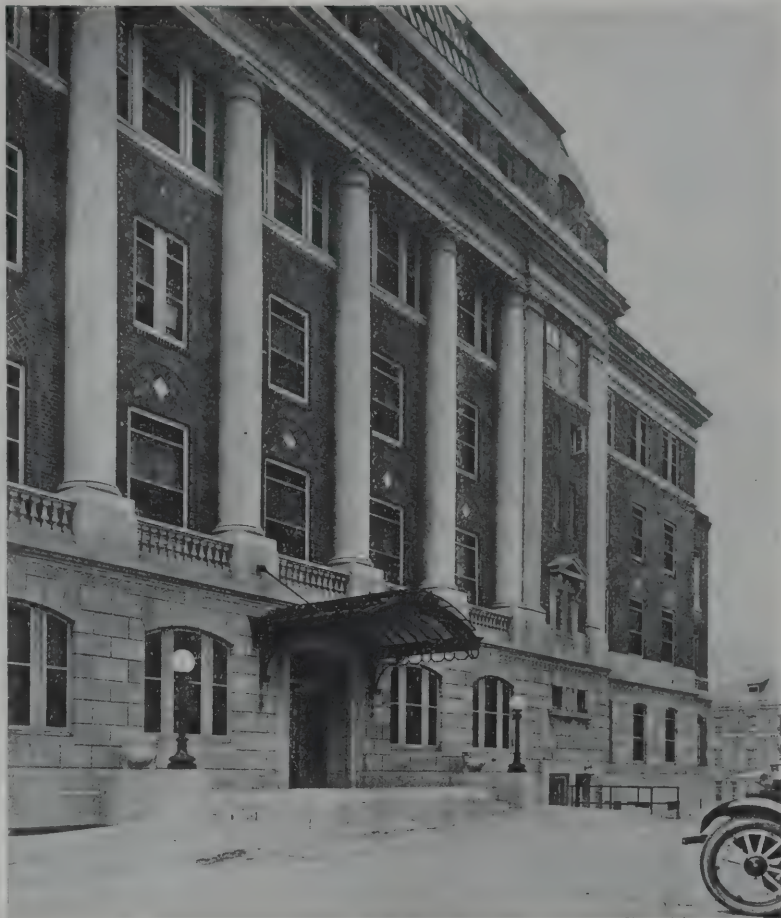
Great care has been taken to isolate the maternity delivery rooms so that the other patients will be free from disturbance. The entire maternity suite is



placed on the next to the top story, to give it special quietness and isolation.

Special attention has been given to the elimination of noise throughout the building. The elevators open from vestibules rather than directly into the halls. Clicking door latches are entirely omitted, noiseless self-closers being substituted and arm hooks instead of knobs, so that the nurse can open the door while both hands are occupied. The partitions between the bedrooms and between the bedrooms and the halls are built double, with an air space between the parts to prevent the transmission of sound.

The signal service from the beds to the nurses is by means of tiny electric bulbs, which operate with the utmost efficiency, as well as producing the best psychological comfort to the patient. The pear push, hanging on a wire at the patient's bed, registers in the nurses' station, in the sink room and in the diet kitchen on the same floor and also in the head nurse's room on the first floor, so that the head nurse may know by the duration of the light, the promptness with which calls are answered. The signal cannot be released by the nurse until she has come to the patient's bedside and pushed a ring on the pear push from which the call was made. In order that the patient may not be left in doubt as to whether his call is registered, a small signal lamp is placed inside the patient's room, over the door, which shows a tiny red light when



Detail View of Facade

he pushes the call button.

The usual hospital requirements for sanitation in the sink rooms and diet kitchens, and every possible facility in caring for patients are carried to a far point.

The accommodations for children are on the first floor where they are easy of access and require practically no elevator service.

The corridors are divided into units, and doors so placed that, as necessity requires, certain groups of rooms can be used for male patients, separated from the other rooms reserved for the female patients.

The operating rooms are provided with the usual skylighting. Artificial light is produced by placing reflectors directly over the ceiling sash, and by bordering the vertical parts of the skylight with incandescent lamps, the same direction is given to the rays as that of the natural daylight. All the artificial lighting is behind glass surfaces to insure diffusion of the light and prevent accumulation of dust on fixtures.



View in Children's Ward Showing Metal and Glass Screens and Curtains for Privacy



View in Private Room Showing Opening to Solarium

The walls in these rooms are wainscoted seven feet high with a cool grey tile and a similarly toned paint covers the plastered walls and ceilings above. This does away with the glare from the usual white walls and tile, and yet does not absorb too much of the light.

In working out the details of planning and equipment, the architects were assisted by Mr. Charles F. Neergaard, Secretary of the Board of Trustees of the hospital, acting in the capacity of hospital expert.

The entrance lobby, with its cheerful Pompeian tones, its ample light and air, and curtained windows, makes one feel on entering the hospital a sense of warmth and homelikeness.

The exterior of the building proclaims its special use, the required admission of large volumes of sunlight and the large windows for the operating rooms are evident at once. The semi-monumental design indicates something of the memorial, yet lack of austerity eliminates any institutional appearance.

The hospital was built by Mrs. Carson C. Peck in memory of her husband; her idea was to provide a much-needed place for persons of moderate means, and the endowment fund helps to reduce the cost to the

patients for service of a sort which otherwise would be rather expensive.

The hospital has been in operation for several months and the element of comfort and cheer to the patients, which is the dominant note of the building, has not only proved its great value from the patients' view-point but has been commented upon by doctors and nurses generally, being a real step in advance in providing an environment conducive to contentment and thus to convalescence.

There is a special opportunity afforded architects for the exercise of sympathetic treatment of design in the case of hospital buildings. The building must be more than an institution for the treatment of disease; it must be

thought of as a resting place for the sick, and as such, every effort should be made to create an atmosphere of comfort and harmony. The significance of benefits that might come to the patient from allowing his eye to rest upon objects of pleasing form and color has been overlooked by the medical profession in its desire to create hygienic conditions, and it is incumbent upon the architect to modify this influence through study of the problem from the broad angle of the patient's comfort.



View in Children's Solarium

Architectural and Building Economics

A Department Devoted to the Determination of Factors of Efficiency and Economy in Building Construction and Civic Development as Affected by Architectural Design

C. STANLEY TAYLOR, ASSOCIATE EDITOR

ONE of the interesting features of the reconstruction period is the generally broader basis upon which business activities of every kind are being established. It would seem almost as though the enforced rest period of the war had provided a breathing space during which business men have had an opportunity to consider from all angles their normal business activities. Owing to war pressure, speed of production in almost every line has been developed to an almost unheard-of degree. The vision of the individual has been broadened. He has learned to see matters in a more comprehensive light and to consider issues, and in the profession to apply sound business principles to a degree never before known.

Perhaps in no profession or general class of business can interest in the problems of the reconstruction period, and the development of business along broader lines, be more definitely noted than among architects. True, this interest is not all-inclusive, nor is it as noticeable in certain sections of the country as in others; but, generally speaking, there is being evidenced today on the part of the architect a definite desire to analyze the possibilities of the profession toward the rendering of a broad, clearly defined service to the public.

There are several factors which have recently been instrumental in focussing attention on the possibilities of a more businesslike administration of the affairs of the architect. The exigencies of war-time conditions and a lean period from which the profession is now emerging, the imminence of a growing and well stabilized building boom, the readjustment of building material and labor costs and the necessity for greater efficiency of purpose in the design of buildings of every type — all these factors have had and are having their effect in the form of a general house-cleaning in preparation for the activity of the next few years. The difficulty of obtaining financing for building operations is also leading the architect to a more comprehensive study of economic elements which affect his practice. Certainly, there has never before been shown so great an interest in the factors affecting a building operation, which in times past have been left entirely to the real estate and mortgage broker, the building manager and the financier.

The architect is lifting his eyes from the drawing board to peer into the world of business. Almost with amazement he is learning the interalliance of investment and design; of maintenance and equip-

ment — of profit and construction cost. He is learning, too, that his splendid equipment of constructive imagination may be made to play an important part long before a particular building is to be designed and built; in fact, that the very inception of such a project may in many cases be in his own mind, or at least that his advice may be of distinct value in carrying out building promotion activities which will lead ultimately to attractive and interesting commissions.

THE Department of Architectural and Building Economics has been instituted in THE ARCHITECTURAL FORUM to meet a growing demand for practical information regarding the many business factors which are exercising an increasing influence on the practice of architecture. In this department there will be presented from month to month academic and expository articles dealing with various instructive phases of building and civic finance: promotion of building operations, maintenance, insurance engineering, efficiency of design from the business viewpoint, and similar subjects of constructive value in assisting the architect to meet the demands of modern business conditions and the competition of encroaching interests.

One has but to realize the tremendous responsibility involved in the direction of the expenditure of vast sums of money which will annually pour into the building field to know that for the architect a broader knowledge of the business aspects involved in the larger practice of his profession will prove invaluable in the establishment of true service to his clients. Buildings are the important tools of industry and commerce. The more efficient in purpose they may be made through the medium of studied design, the greater will be the economic contribution of the architect. Nor will it be necessary to sacrifice art to commercialism. The æsthetic interests of the community are to be maintained on a scale never before known. There will be no deviation from the sound principles and traditions of an honored profession; but a broadening of service consistent with modern progress — an acceptance of the responsibility incumbent upon producers of natural wealth in one of its basic forms — shelter.

The man who has constructive imagination and sound business ideas is the man the world wants today. It cannot be unethical to be possessed of what is termed "business sense" and to visualize the busi-

ness possibilities in any building project. Therefore it is evident that the interest of the architect should be directed as never before to the possibilities of serving his clients in a broader capacity through a knowledge of building finance and the general principles of building promotion.

At the present time many of the building operations which are getting under way are in this class and some of the more important of these have been the result of careful study and development on the part of an architect. In New York City we find a great office building ready for immediate construction which was greatly aided in its promotion and financing by an organization of architects. In Cleveland a co-operative apartment; in Detroit a vast projected housing development; and in various sections of this country and Canada, hotels, port terminals and

industrial buildings are being aided in promotion by a few architects and engineers who have foreseen coming developments and solved the problem of immediate work through the application of constructive imagination.

It is evident, therefore, that because of its business possibilities great interest attaches to this subject of building promotion, and for some months principal consideration will be given in this Department to an analysis of the various factors of such promotion and the manner in which it may affect the average architect's practice. A detailed study will be made of the types of building operations more easily subject to promotion in various localities; the methods of developing such projects; financial methods and questions involved; and the relation of the architect to work of this character that may come into his office.

Building Operations Subject to Promotion at This Time

ONE of the first factors to be considered at this time is an analysis of various building operations for the purpose of determining the more logical field in which promotion work can be carried on with advantage at this time. The measurement of feasibility which can be applied to any building promotion project is constituted principally by the demand for the particular type of building space which may at present or in the very near future exist in the locality under consideration. It is at present plainly useless to attempt the promotion of any type of building operation unless the occupancy demand is so great that immediate rentals and even sales may be confidently expected.

Classified generally and from a national viewpoint in their apparent order of importance we find that the demand for buildings of various types is as follows:

- Dwellings (Multi- and single-family.)
- Industrial Housing.
- Hotels.
- Office Buildings.
- Educational Buildings.
- Community and Amusement Buildings.
- Waterfront Construction (Terminal Buildings, Warehouses and Docks.)
- Industrial Buildings (Small Manufacturing and Loft Types.)
- Religious and Institutional Buildings.

In this connection the Information and Education Service of the United States Department of Labor has been making careful analysis of building operations now being started in various localities and a brief consideration of some of the findings resulting from such careful research will be of interest. Following is a recent weekly report of this organization

on new construction work which will serve to demonstrate the importance of the classes of buildings outlined in the preceding paragraph:

<i>Project</i>	<i>Number</i>	<i>Valuation</i>
Bridges, culverts	32	\$433,005
Clubs, hotels, institutions	37	1,969,430
Federal, State, Municipal	34	10,206,192
Garages, stables	173	1,303,740
Industrial	328	13,790,162
Public Work	143	8,020,275
Residential	1,644	9,293,111
Schools, churches, theatres	71	6,518,693
Stores, offices, banks	227	7,483,477
Terminals, railroad stations	1	1,500,000
Miscellaneous	23	346,000
	2,713	\$60,864,085

In order that intelligent determination may be made of types of buildings which may be subject to promotion and to determine logical methods of approaching individual projects, the various classes of buildings outlined in foregoing paragraphs should be considered singly and in some detail. From such consideration logical arguments which may prove of value during negotiation can be developed. Conditions and facts outlined in following paragraphs must naturally be subject to modification to fit local conditions and business and financial methods. The fact that this article is prepared for readers in New York and California, Texas and Michigan — as well as in Canada, will necessitate recapitulation according to the variance of local conditions. In general, the following discussion will represent a mean between high and low unit realty values and similar degrees of cost in financing.

DEVELOPING DWELLING PROJECTS FOR DESIGN

In view of the fact that the housing shortage has reached a point of pressure never before equalled in the United States and Canada, a considerable degree of publicity is being given to the subject — both nationally and locally. Reports have it that we are one million homes short in the United States and from first-hand information gathered by the writer on recent trips through the South and West it would seem that this report is not over-exaggerated.

In representative cities such as New York, Detroit, Montreal, Toronto, Philadelphia, Norfolk, Seattle and St. Louis the need for additional homes has become imperative. Typical of the pressure exerted by a lack of normal building for some years past is the cry now being raised almost universally against rent profiteers. In general, the price asked for single dwellings varies from sixty to one hundred per cent over the asking price of five years ago.

In New York a peculiar speculative real estate activity has swept the market as a result of the lack of housing. Real estate speculators have been buying hundreds of apartment houses for the purpose of reselling at a quick profit. The method usually followed is to offer the owner from six to seven times the annual rental as a purchase price for his building. After the building is purchased all rents are raised on one pretext or another and the tenants are usually forced to pay the increased rental, as no available space can be found into which to move. As soon as the rent roll has thus been increased the property is offered for sale on the seven times annual income basis. In this manner, on a purely speculative basis, rents are forced to the maximum throughout the city. Kindred operations are being carried out at practically every point of housing shortage in America. It is significant of coming building activity, however, that the attention of speculators is now turning to the building lot field.

This dwelling field provides an exceptional opportunity for investment, offering good returns. It is divided into several classes of housing, each of which must be considered as a separate unit. These are: individual and two and three-family houses, apartment houses and industrial housing. Each of these fields offers splendid opportunity for development, and the necessity for careful architectural development from both economic and æsthetic standpoints was never greater than today.

THE FIELD OF INDIVIDUAL DWELLINGS

There are various factors which have operated to bring about a strong demand for individual dwellings in both city and suburban locations. Among these may be noted: the unsatisfied normal demand for such housing; the desire of former apartment dwellers, disgusted with rental increases to the point where they are ready and anxious to purchase homes; the equal desire of tenants of individual dwellings who

have been ousted through the sale of their rented houses to new owners for occupancy; and the fact that many families, through the medium of lucrative war-time employment, are for the first time in a financial position to own their own homes.

From the viewpoint of the promoter, therefore, it is evident that here is a field ready for operation. As the architect, through the medium of encouraging and advising on building operations, seeks as his payment no fee other than that covering the commission to design and supervise their construction, it is evident that in order to make the project pay it must involve the building of at least ten moderate-cost houses. Stress is laid on the term "moderate-cost house," as the great demand is for homes costing less than \$10,000 — preferably from \$5,000 to \$7,000.

The best appeal for this type of promotion is to the investor who has a speculative turn of mind — but who wants a strong factor of safety in any operation even at the sacrifice of high profits. High profits should not be sought in a home-building speculation for the reason (aside from those of fairness and economic necessity) that profits must be sought from the increased value of the land — rather than a profit on the building.

Building costs are of course abnormally high at present; and sustained by an increasing demand, they will be lowered in years to come only by keen and increasing competition among material dealers — a problematical condition at best. Land, however, is practically the one stable form of property-holding which has not enjoyed a general increase in value. This increase is to come, however, even as the purchasing power of the dollar has decreased, and real estate generally is to feel a "boom" undreamed of in its proportions. *At present, the key to the increase in the value of land available for residential purposes is the building of homes in the immediate vicinity.*

DEVELOPING THE SUBURBAN RESIDENTIAL PROJECT

Of the two, the suburban residential development (as opposed to the city project) is generally the more difficult to develop at this time, for the reason that the demand for city houses at low cost is greater; and as land values in the city are better stabilized it is easier to get money for the city project in a difficult financial market.

To bring into actuality a suburban housing development chosen at random and to actually cause the construction of houses (to design which the architect may be commissioned) it is at present almost useless to approach the ordinary investor. A much better opportunity is offered through determining a suburban section in which there is an unsupplied demand for houses and where real estate activity is beginning. Usually in developing such operations it is found best to enlist the services of a competent real estate man who knows the section and who, for his interest in

the project, may handle the real estate transactions involved and benefit by commissions which he may be placed in a position to earn.

Having determined on a section for investigation, there are two details which should be learned immediately: First, who are the owners of particularly desirable tracts of land in such section; second, what interests have recently acquired land in the neighborhood. It will be found generally that land purchases are already being made for future building in desirable suburban residential neighborhoods.

The direct appeal to owners of large tracts of land, which they are desirous of selling as building lots, may be made through a proposed building project on the sound and timely basis that by building a comparatively small number of houses they may start land selling activity. Buyers of subdivision or allotment lots are in the future to be a very different class, or at least they will follow a different method, than in years past. In Canada it is said that every man and almost every woman owns at least one lot, purchased usually from a blueprint and having a potential value which may only be realized decades or even centuries hence. Certainly, as lot owners, the citizens of the United States run the Canadians a close second.

Following the logical course determined by such disillusionment, the lot buyer of the future will want to see some houses built close to the land he purchases — to know that he is to have an opportunity to enjoy the increment which is promised when a neighborhood really begins to "build up." The wise owner and buyer of residential areas for development will therefore build some houses on his tract — and he will be the first to sell when the million lots for the million homes America needs are called for.

Here, then, is the appeal — the reason why suburban developers should "build now." Even if they do not profit on the sale of the first houses built there will certainly be an increased market for the balance of their property and at a better figure.

The fact that a building proposition can be financed has a direct appeal to an owner which practically guarantees a new commission for the architect. The logical steps to be taken in promoting this type of suburban residential building operation are therefore as follows:

(1) Singly or in co-operation with local real estate brokers to determine possible clients (owners or recent buyers of residential tracts of land).

(2) To take up with local banks, building loan associations or other financial sources the question of their willingness to finance new houses. (If a source of mortgage money can be determined before taking up the proposition with the owner a strong argument is added to the work of promoting the new building operation.) Incidentally, as mortgage money for building suburban houses is still "tight" it might

be interesting to describe the method by which an Ohio architect recently financed sixty houses. In this case the architect had a possible client who owned property ready for development and who was willing to build houses provided loans might be obtained. One bank was found, willing to make a loan of fifty per cent of the value of land and building, but the owner was not willing to go into the proposition with fifty per cent of the cost in cash. The architect solved the problem as follows: The land involved was free and clear (unmortgaged) and the owner, at the architect's suggestion, offered to the bank, as collateral, not only the lot and house involved in each loan, but three additional lots with each house. Resorting to figures as a better means of explanation we find the following:

Estimated cost of each house, including proportion of street improvements.....	\$6,000
Appraised value of each lot.....	1,300

Basis on which bank would loan 50%	\$7,300
Or a first mortgage of.....	\$3,650

On this basis the owner, already having possession of the unmortgaged lot, must invest in building construction on each house the following:

Cost of construction, each house ..	\$6,000
Money obtained on bank loan.	3,650

Cash investment in each house.....	\$2,350
------------------------------------	---------

Or for sixty houses, \$141,000.

The above amount was more than the owner was willing to invest, but the architect's solution of adding three lots to the collateral for each loan worked out as follows:

Value of house and lot as shown above	\$7,300
Bank willing to loan on this.....	\$3,650
Value of three additional lots, forming plot of house and four lots.....	3,900
On which bank was willing to loan an additional forty per cent.....	\$1,560

Total value of land and house.....	\$11,200
Total loan on each house, four lots...	\$5,210

On this basis the owner, by putting up additional lots as collateral, has only to invest in actual cash for the building of sixty houses as follows:

Cost of construction, each house.....	\$6,000
Loan from bank on above basis.....	5,210

Cash investment each house.....	\$790
---------------------------------	-------

Or for sixty houses, \$47,400, plus additional cost of improving streets.

The sound business value of this transaction is apparent and it might be interesting, as proof, to analyze the position of each party to the transaction at the time when the sixty houses were completed, each on a plot of four lots, three of which, each subject to a mortgage of one-third of \$1,560, were available for subsequent sale. (A clause in the mortgage

made possible separate payment of this amount, leaving house and lot subject to mortgage of \$3,650.)

The bank has ample legal collateral for its loan.

The owner, having originally a large tract of undeveloped land, now has sixty houses; a number of improved lots for sale at increased value due to improvements and erection of houses; and the increment on the balance of his tract of land incident to the erection of a large number of houses in the immediate neighborhood — an increase of at least fifteen per cent over the original value.

The architect has received his fee for design and supervision of construction on a \$300,000 operation.

These figures are given in detail to explain an

interesting building transaction and to show the value of business judgment on the part of an architect.

(3) The final step in this type of promotion is to co-operate with the owner in developing the financing of his project, at which time the architect is ready to take the newly developed commission into his office. It is evident from the above information that the property under consideration should be clear of mortgage or other encumbrance in order that the transaction may be financed.

Further details of the promotion of a suburban housing development will follow in the July issue in an article entitled "The Organization and Administration of a Suburban Realty Development Company."

The Selection of a Site for a Suburban Development

THIS interest in suburban house building is naturally not confined to the question of house types but includes the selection of proper sites for development; the method of laying out these sites; and the establishment of a selling plan which will appeal to the average buyer.

Following back through the comparatively recent history of suburban development, we find that in 1904, 1905 and 1906 house building and lot selling was fairly active around the larger Eastern cities; in the West, particularly in the vicinity of Detroit and Cleveland, there existed an active interest in this field in the period before the war. During both periods there was considerable activity in the larger cities of Canada.

The fact that this activity came practically to a standstill in 1907 and 1908 in the Eastern cities, and during the early stages of the war in cities of the West and of Canada, has given a period of several years in which suburban development has been in what might be termed a ripening stage. Very little new work has been carried out and an excellent opportunity is provided to study the working out of various plans and methods in vogue some years ago. From these results may well be determined the better methods to follow during the years of greater activity, which are confidently and logically expected to develop soon.

Among the various factors which experience has shown exercise direct influence on the success of a development, the more important are:

- Natural attractiveness of the land selected.
- Character of neighborhood.
- Layout of streets and lots.
- Engineering and mechanical improvement costs.
- Transportation.
- Overhead and carrying charges against property.
- Overdevelopment without building.
- Existing community facilities.

In the success or failure of suburban developments the factor of natural attractiveness has its direct effect in the impression made upon the prospective buyer. Therefore it is apparent that not only must

advantage be taken of conditions of the wild land which may be maintained, to add to the attractiveness of the improvement, but the value of the skillful service of the competent landscape architect has never been more clearly demonstrated than in the result of various suburban development projects.

An excellent example of this condition is to be found in a development near one of the smaller cities of New York State. Here a large tract of land was selected for development, located at a most logical point with good transportation facilities to the heart of the city. All roads leading to the property were in good condition and the possibilities for a successful operation were excellent. The weak point in this development, however, was the failure of the owners to employ trained service in laying out the property.

The contour of this property in the front section resembled a shallow bowl two thousand feet in diameter with a difference in elevation of approximately thirty feet between the central point and the main highway. Toward the center and rear sections the land rises to form an attractive level plateau. On three sides of the property attractive vistas are established by rolling land and woods, but on the fourth side an ugly abandoned brick plant spreads its low, unattractive buildings and stripped clay pits.

In laying out this property the center of the hollow was taken almost as the hub of a wheel with roads leading to it and passing on across the plateau in the rear. To further accentuate the hollow (and almost deliberate in its inadvertance) the first house built on the property was placed at the very base of the bowl.

The result was the accentuation of the low section of the property. As no attempt was made to drain any but built-up property, large pools of water stood at this point after every rainstorm. The impression upon the prospective purchaser was not conducive to buying. The simple solution of this problem would have been to create a small artificial lake at the low point, adding to the beauty of the property and creating an entirely different impression.

The unattractive brick-plant vista should have been cut off by planting, which at low cost would have added thousands of dollars to the value of the property; or the plant could have been purchased at low cost and demolished. In the minds of prospective purchasers of lots, as they refused to buy, were two thoughts, one of low and possibly wet land and the other the ugly vista of the abandoned brick plant. Because of these conditions and for no other reason the development was a failure.

In selecting land the character of the neighborhood is of prime importance. From the business viewpoint it is unwise to attempt to place any higher type of development in a given neighborhood than may conform with the general character of the community. An example of failure in this regard may be found in a development which was started and abandoned near Brooklyn, N. Y. In this case the land selected could be reached by one line of transportation only — a branch of the elevated railroad. Unfortunately this was a feeder line for a number of undesirable communities containing a large, low class foreign element. No market could be maintained for the good houses in this development, as the class of commuters to whom they were to be sold refused to travel in elevated trains crowded during business hours with factory and sweat-shop workers.

The extent of community facilities constitutes another important factor. Schools and stores must not be far distant, nor places of simple amusement such as motion picture theatres. The road which children must take in going back and forth from school is always a subject of serious attention on the part of the prospective purchaser.

The possibilities for the layout of streets and lots and the probable costs of engineering and mechanical improvements must be given serious consideration before purchasing land for development. This entails a study of contours; conformation and nature of the soil. The more important points to note are:

(1) Can streets be provided without excess grades or grading and filling cost? It does not follow that the layout must be of the gridiron pattern and the land flat; but it must be possible to put in a system of main roads which will carry traffic by easy grades to every section of the property.

(2) Where are the nearest points for water, sewer, gas and electric connection and how expensive will be installation throughout the property? Will a disposal system be necessary for sewage? If the cost of such mechanical installation, roads and sidewalks brings up the cost of the individual tract of land to more than 20 per cent of the cost of the average type of house which will be built on this property, the proposition is not economically sound.

(3) Consideration must also be given to the probable overhead and carrying charges of the property while in process of selling through a period of several

years. On one large development north of New York City a serious error was made in plotting too much of the property and filing the new map. This property immediately became subject to a much higher tax than in its original acreage form, in spite of the fact that nothing was done on fully eighty per cent of the land. It would have been better to file the lot map on a small section of the property at a time, saving on tax cost.

If the property in question comes within the limits of a city or town, the question of street improvements should be taken up with local officials in order to determine the restrictions and attitude of the community. It may prove that the city will take over the streets after they are built, if in accordance with local specifications. Also it may be possible to have sewer extensions and other mechanical improvements taken over and assessed throughout the district.

(4) From the insurance viewpoint investigation should be made of available fire fighting apparatus.

The question of transportation in its relation to the property is one of maximum importance; and a failure to appreciate the serious effect of bad transportation conditions has caused more failures in suburban development than any other single factor.

The time of transportation from the principal business sections should be at the most one hour and preferably about thirty minutes. The distance from the nearest point of transportation to the property should not be over one-quarter of a mile and preferably within five minutes' walk. Cost of commutation must never be forgotten as it may in many cases create too great an additional burden.

Another point of importance is that of roads good for automobile traffic. The evidence of the future is that practically every family which purchases a suburban home will own an automobile and the roads of the neighborhood must be good if the development is to achieve success.

There was never a time when so much care should be given to the selection of the land before money is spent on improvements and sales overhead. The public has money to buy, but the buying will be along more conservative lines than ever before.

One warning may be sounded for present and future developments. That is to determine how many subdivision lots, where improvements were put in under the low cost figures of several years ago, are for sale in the vicinity of any proposed new operation. Can this competition be met under present-day costs? Can lots in the new development, charged with the present costs of mechanical improvements, be placed on the market at values less or even equal to those of the older near-by developments? If they cannot, there are but two alternatives — houses must be built and the immediate development of increment in land values thereby started; or another neighborhood must be selected for development.

New Garden Apartments, Queens County, New York City

A GROUP OF BUILDINGS NOW UNDER CONSTRUCTION
SHOWING ECONOMY IN PLAN AND NEW PRINCIPLES OF LAND DEVELOPMENT

ANDREW J. THOMAS, ARCHITECT

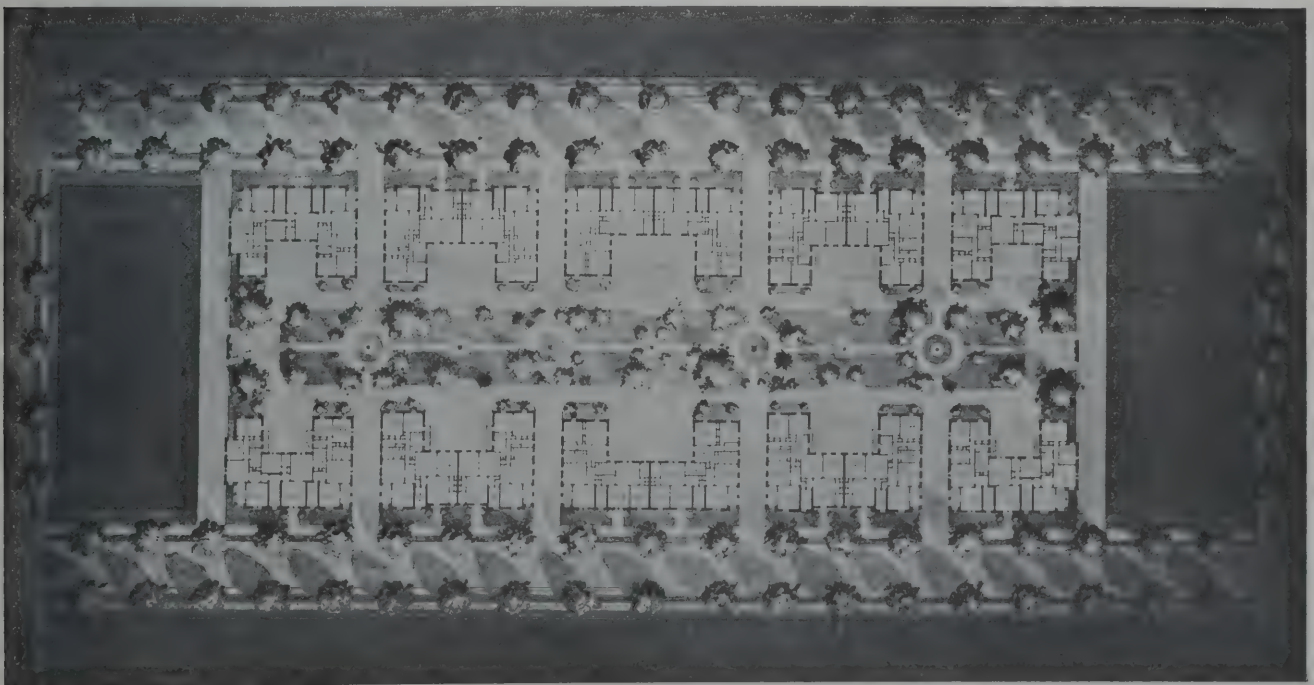
THE housing shortage in most of the large centers of the United States has been receiving extended attention for some months past because of its having reached such an acute stage as to be easily observed by the public, particularly so as it has directly reacted on a large percentage of people through increased rents. In spite of the publicity, the great demand for rented quarters, and the attractive return that present rentals show on real estate investments, little activity toward supplying housing facilities has been in evidence because of the timidity of investors who have been unable to see the continuance of high building costs, and have feared that buildings erected now would in a few years be at a disadvantage with those erected later. Each recurring day, however, sees this theory giving ground, and in fact the latest reports of building contracts would indicate that it was nearly exploded.

It is interesting to note that the largest building operation to be undertaken in New York since the signing of the armistice, is one that will provide housing accommodations for 144 families. This has not been projected for philanthropic reasons but as a business investment, and involving the expenditure of \$900,000, including land, as it does, it proves that the developers, The Queensboro Corporation, have found ample reason to proceed with

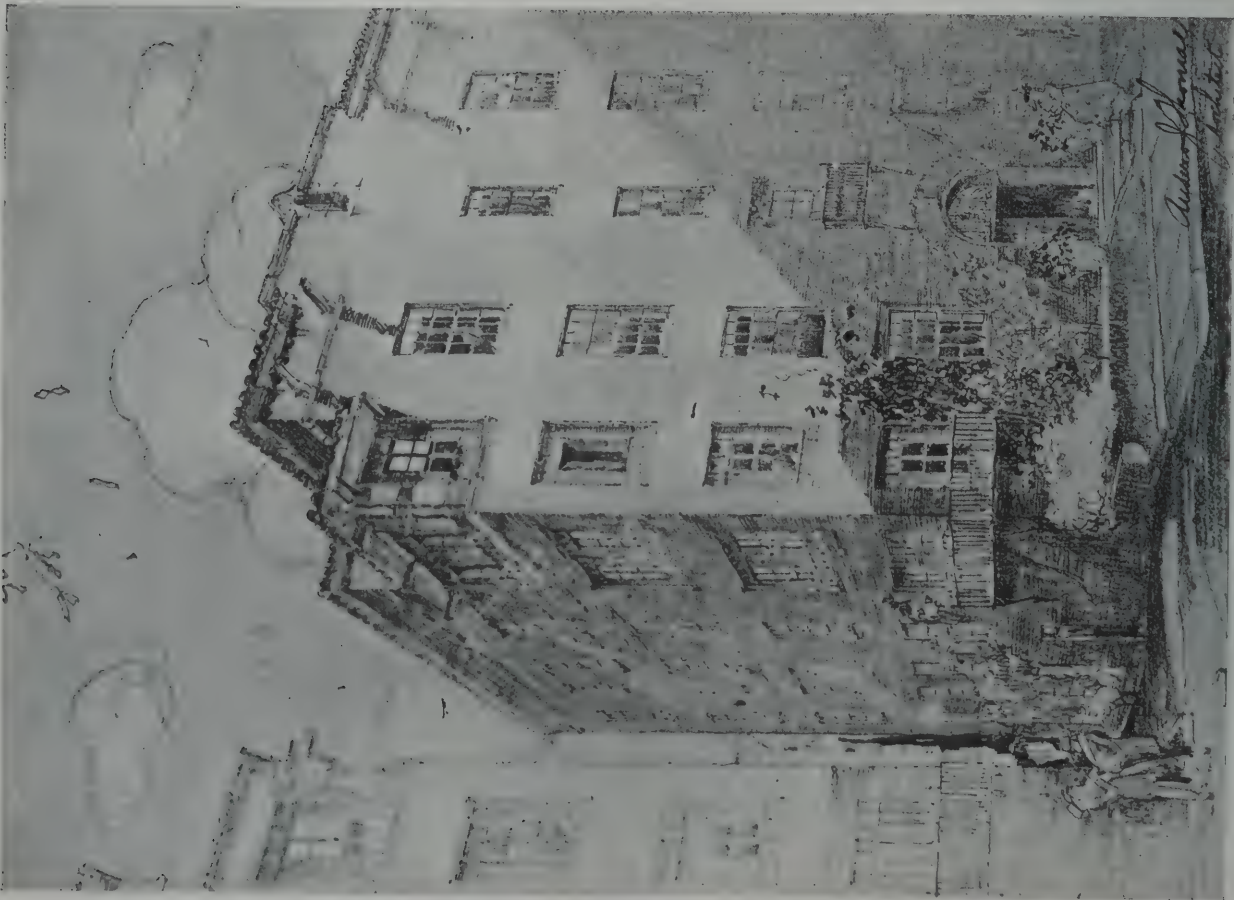
building. The operation is, therefore, of significance because of the economic reasons that induced the owners to undertake building at this time of general uncertainty, and furthermore, because of advanced principles of planning that characterize the group of dwellings and are directly responsible for their moderate cost, and the particular environment surrounding the development which makes its operation attractive from a real estate point of view.

The building industry has probably been more demoralized by the war than any other fundamental industry, and yet the cost of building is estimated by the Department of Labor to have increased only about 22 per cent as compared with an increase of 67 per cent in the cost of food and 80 per cent in the cost of clothing. It is believed by The Queensboro Corporation, that once the building industry resumes its normal activity, there will be a tendency to equalize the cost of these three fundamental commodities; in other words, the cost of building is apt to be higher next year, and the cost of food and clothing may be expected to decline somewhat.

Another important factor in relation to the cost of building is that it is estimated 75 per cent of the cost of a building operation is comprized of labor employed at the site, in the mill or in the brickyard. With the present high cost of living, and the marked



Block Plan Showing Location of Apartment Buildings on Plot 200x500 Feet. Side Courts are 15 Feet Wide and the Units From Center to Center of the Courts are respectively 83, 107 and 120 Feet, Reading to the Center of the Plan



PERSPECTIVE VIEW OF TYPICAL UNIT

GARDEN APARTMENTS, JACKSON HEIGHTS, QUEENS COUNTY, NEW YORK CITY

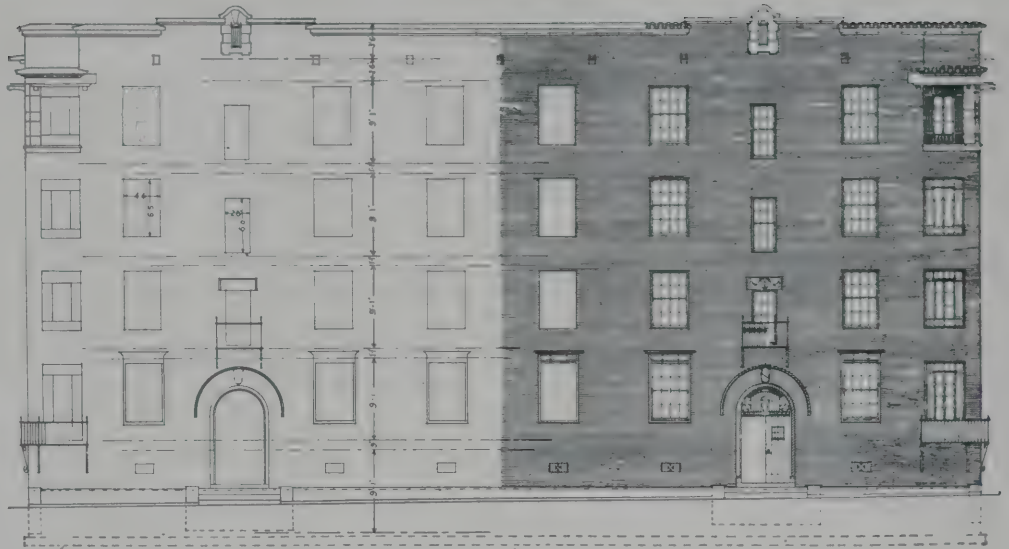
ANDREW J. THOMAS, ARCHITECT



DETAIL OF ENTRANCE DOORWAY

lack of common labor, due to diminished immigration, it is not to be expected that the cost of labor can decline; and as material stocks are low and must be replenished by the employment of high priced labor, it is reasonable to expect that new supplies of building material will cost more in future than they have in the past.

There is at present an abnormal shortage of houses for people to live in, the industrial expansion that is being planned in practically all centers will insure the demand exceeding the supply for a number of years to come, and with the probable increased cost of later buildings there is assurance that good rental returns can be had for a sufficiently long time to make any adjustment to suit new conditions that may arise in the future a matter of comparative ease.

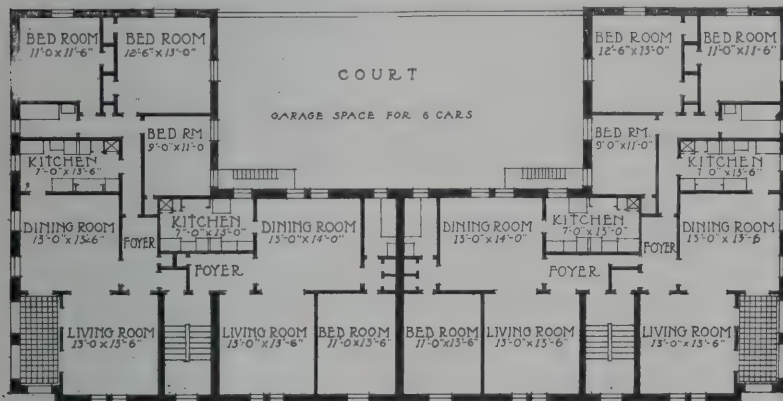


Street Elevation of Typical Unit

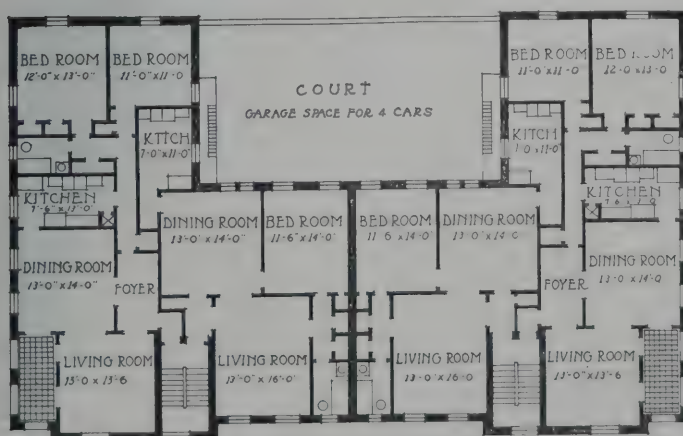
These are the deductions which have made it seem desirable to The Queensboro Corporation to build immediately, and their action which is a constructive aid in the solution of the housing problem, proves that it is not new theories that are needed necessarily to relieve the situation, but the ability to determine investment possibilities and having reached a decision fairly, to proceed on the basis of it.

This group now under construction will comprise sixteen apartment houses four stories high with basement, located on a city block 200 by 500 feet in area. The location is in Queens County about twenty minutes from the Grand Central District of New York City, by the new rapid transit lines which have made this portion of the city available for living quarters of discriminating people who can afford to pay fair rentals.

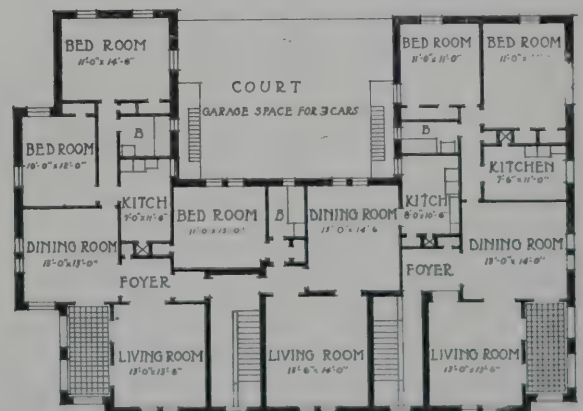
Study of the block plan will show a new feature in the planning of such buildings. They are arranged as detached



Typical Floor Plan of 120 Foot Unit
8-6 Room and 8-4 Room Apartments, Area 4266 Square Feet



Typical Floor Plan of 107 Foot Unit
8-5 Room and 8-4 Room Apartments, Area 4190 Square Feet



Typical Floor Plan of 83 Foot Unit
8-5 Room and 4-4 Room Apartments, Area 3199 Sq. Ft.

and semi-detached houses with courts 15 feet wide between the units and a continuous open space in the center of the block 40 feet wide which will be planted as a garden. This provides with the side courts which serve also as automobile driveways, a system of block ventilation that is nearly perfect, and unknown to the usual apartment house development. The courts of the buildings themselves are made especially large so that each apartment is afforded ample light and air. It might at first thought seem extravagant to devote so great an area to courts, but the plan is based on careful investigations of building development and its return over a period of years. It has been recognized that light and air have distinct values that are worth striving for; an apartment in which all the rooms have cross ventilation and an unobstructed view of the outdoors enjoys advantages in the way of larger rentals, fewer vacancies and longer life than one having practically no cross ventilation and an outlook from many of the rooms into a dark walled up court. Further study of the plan will indicate such an economy of arrangement and consequent reduction in the cost of building as to largely offset any possible loss of revenue from lack of utilizing the area to the legal limit.

The plan is of a closely contained arrangement, all rooms being within a short radius of the common center, thereby eliminating waste space and affording separate grouping of the living and sleeping rooms in a manner generally found only in private houses. There are no rear apartments in any of the buildings, the living rooms are at the front and so far as possible

the bedrooms are given corner locations facing the gardens with light on two sides. The stairways are placed in central positions occupying the least possible area, involving the minimum fire wall construction, and giving access to the floors in such manner that no long halls are necessary to reach the various rooms. This one feature of planning has in it possibilities of lessening the cost of construction sufficiently to permit apartment buildings to be erected today at a cost nearly the same as that of buildings of the older type erected before the war.

The architect of these buildings has given a great deal of study toward effecting economical apartment house planning and two plans for five story non-elevator apartments each occupying a hundred foot square corner lot are reproduced to afford definite comparison of his results with the type that previous to the war was erected in large numbers by speculative interests. The difference in cost of erection of these two buildings is \$20,000 in favor of the plan of the newer type, from which a building will soon be erected at an estimated advance of only 10 per cent. over the pre-war cost of a building of similar accommodations but of the old type plan. This low cost is obtained through the saving of area by reason of more compact planning and an economic development of the land. The new plan shows a total area of 6760 square feet with 32 large and well grouped rooms to a floor, against 7900 square feet in the other plan employed to produce the same number of rooms and of smaller dimensions. The cubic contents thus saved, considering the height of the buildings 60 feet,



Bird's-eye View Showing Courts and Interior Treatment of Block

figured at 30 cents represents a saving of \$20,646, and the addition of this area to the courts provides better light, ventilation and outlook that immediately increase the rental value, thereby insuring larger returns on a smaller investment. Careful comparison of these plans will prove that the best investment is not made when the legal maximum area of the lot is built upon, for the cost of excess construction more than offsets any possible greater return.

It is on these principles that the buildings of The Queensboro Corporation have been planned. Every effort has, furthermore, been made to simplify construction with the purpose of keeping the cost moderate. The cubic cost figure of 32 cents proves that this has been done, for in comparison with 27 cents, the figure on similarly finished apartment buildings erected early in 1917 by the same corporation, the advance is less than 20 per cent. The cost per room approximates \$1000 and the rentals will be based on a monthly charge of \$15.00 per room exclusive of the bathroom.

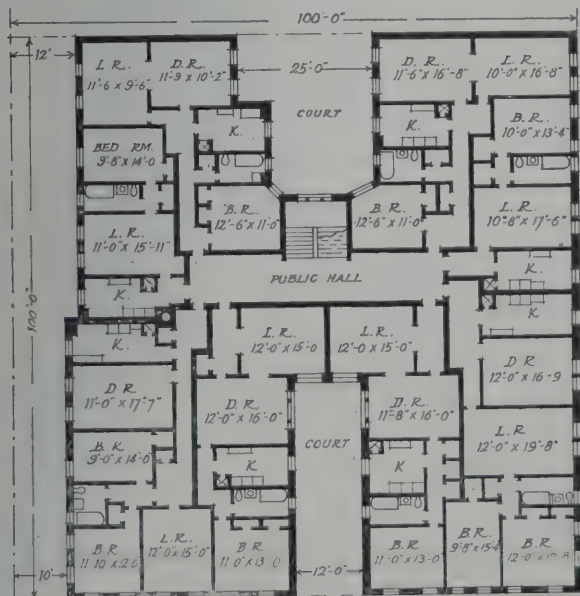
The construction is second class with wood framed floors, exterior walls are twelve inches thick of hard burned common red brick, no face brick being used; a small quantity of Indiana limestone is used for trim at points where it will count in lending character to the facades; wrought iron balconies and grilles and a tile coping give further notes of interest.

The architecture is a modified type of Spanish Renaissance and is extremely attractive in its simplicity. The facades are devoid of unsightly fire escapes, provision for them being made in the courts. The bases of the courts are utilized for garages and

being depressed below the level of the gardens, the attractiveness of this feature is in no way impaired. The buildings are set back from the building lines, and terraced to eliminate the unsightly excavations necessitated by the tenement house law. The garden level is lower and this provides ample light for the janitor's quarters in the basement. Heating is by steam from a single plant in each house; in the semi-detached buildings provision is made for dividing the plant into two sections in the event of the units being owned by different people. Hot water will be furnished each apartment from a central generator in each building.

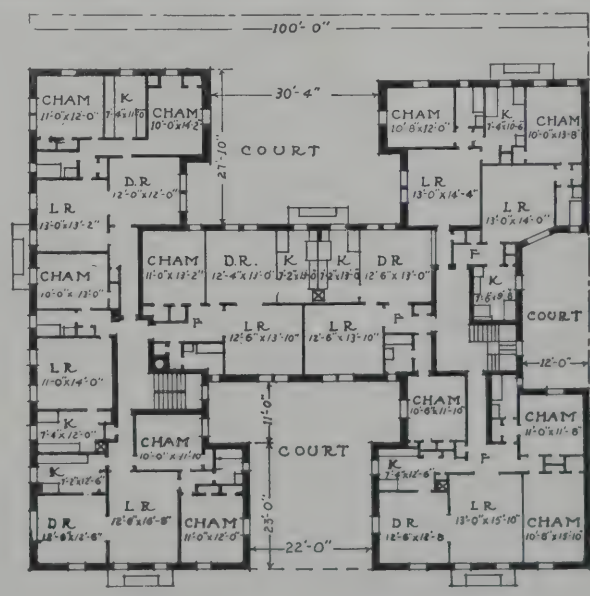
Bathrooms are to be tiled and equipped with modern plumbing fixtures, tubs will be built in and showers provided over each. The interior finish will be white enamel and all floors of oak. The loggias, which are a new feature in New York apartment houses, are screened from the living rooms by French windows, and the outer openings enclosed in glass and movable shutters, the floors are tiled.

A feature of the operation will be the encouragement of community life, which is usually found only in suburban towns, and perhaps attempted here for the first time in an apartment house section. The provision of playgrounds, tennis courts, a golf course, and garden space on adjoining land, with activities of a religious and social character have been an especial attraction to tenants of this corporation's present buildings. New efforts along co-operative lines are developing; the latest of these is the movement toward collective ownership of apartments as a means of reducing the cost of living, which is being considered in relation to this new group of buildings.



Typical Old Type

2-5 Room, 4-4 Room, and 2-3 Room Apartments per Floor
Total 32 Rooms in Area of 7900 Square Feet



New Type, Andrew J. Thomas, Architect

3-5 Room, 2-4 Room and 3-3 Room Apartments per Floor
Total 32 Rooms in Area of 6760 Square Feet

Comparative Floor Plans for Apartment House on Corner Lot, 100x100 Feet

EDITORIAL COMMENT

HOSPITAL construction in the United States has not escaped, any more than other types of building, the restrictive measures which have resulted during the course of the war in creating an abnormal shortage of buildings. The gradually rising prices through 1914, 1915 and 1916 tended materially to discourage the building of hospitals and with the advent of the war, government restrictions stopped all hospital construction, save that for the military and naval forces. The government work was largely temporary, designed to fit only military needs, and cannot be expected in any way to contribute relief to civilian needs which have increased with the growth of our population. We have, therefore, to look forward to a new era of hospital construction of large extent to meet the demand that already exists.

While it can be safely said that the government hospitals have contributed little if anything new to the knowledge of hospital planning, changes of important character may be expected in the ideals and conduct of the medical profession from the participation of large numbers of civilian physicians in government service, and these changes will naturally be reflected in the hospital buildings of the future. The government service was made up of a combination of specialists; physicians in entering the service, even with quite extensive general experience, were examined as to fitness in individual subjects and on the results of such investigation, assigned to the particular phase of practice they were best fitted to perform. This has developed a strong tendency toward group relations in the treatment of the sick. No one doctor is able to stand alone, capable of giving equally expert advice in the many divisions of modern medicine; he perfects his knowledge in one or two special phases of practice and co-operates with others when conditions beyond his range of practice arise.

The knowledge acquired during the war of working harmoniously and effectively in large groups supervised by central administration will be carried into civil life and applied with benefit to many institutions. Because of the high cost of all labor, the greater expense connected with building and all factors entering into modern transactions, the general tendency will be to carry out all manner of operations on a larger scale than formerly in order to maintain overhead costs at a nominal figure.

The demands of the future will particularly affect the hospital. There will undoubtedly be fewer specialized hospitals; the tendency will be toward larger and general institutions. Thus it will evolve upon architects to consider the planning of these buildings in the light of affording co-operative service in such a manner that different types of disease can be treated in one group of buildings with a central location for those features necessary to all departments, and the separate functions so distributed that easy and quick

communication can be had with one another. The various hospital units must be designed to function in an orderly manner, just as the individual specializing physicians combine their efforts to provide complete medical service.

WALLACE CLEMENT SABINE

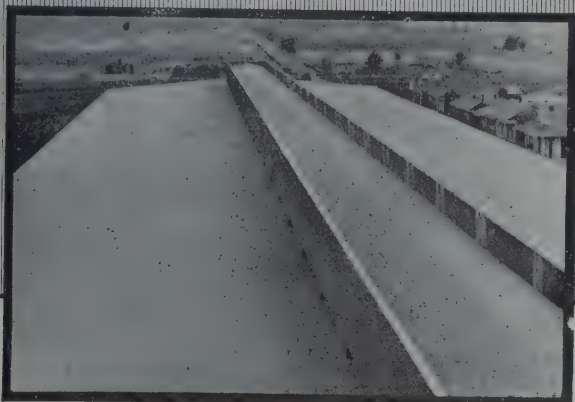
WITH the death of Wallace Clement Sabine on January 10, 1919, a man known to architects throughout the country for his research and valuable contributions to the science of architectural acoustics was removed from a busy and useful life. His preëminence in architectural acoustics, his favorite field of study, was beyond dispute. It was constantly his aim to give to the architectural profession the benefit of his research, and many important buildings testify to the expert knowledge he had of the subject.

He was born in Richwood, Ohio, June 13, 1868. He entered the preparatory department of the Ohio State University at the age of twelve, graduating with the degree of A.B. in 1886, at the age of eighteen. He was a graduate student at Harvard University in physics and mathematics for two years, following which he became an instructor in the former subject. In 1895 he became assistant professor of physics, and in the same year began his work in architectural acoustics. In 1905 he was made full professor at Harvard and in 1906 assumed the duties of Dean of the Graduate School. In 1916-17 he was exchange professor in France, where he lectured at the Sorbonne on acoustics. Returning to this country in the fall of 1917, he gave his services to the government and was made Director of Technical Information under the Board of Air-Craft Production.

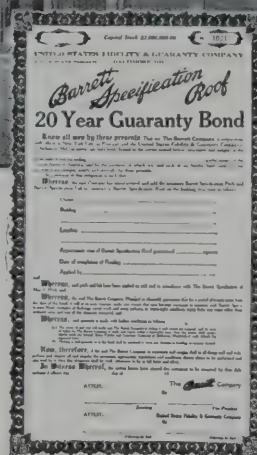
To those architects who knew him, the following lines from an appreciation by Edwin H. Hall in the *Harvard Graduates' Magazine* will recall his engaging personality.

"Any time for the past year or two, looking upon his spiritual, still youthful face, and noting the smiling obstinacy with which he followed a course of toil that must end his life too soon, one might be tempted to think of him as some elfin being that had taken human form in benevolent caprice, but was now planning departure and adventures new. Not that he ever, save in the very ecstasy of pain and weakness, showed any symptoms of world-weariness. He was full of affection, full of the zest of life, full of plans for future years. He has told me that he never enjoyed his work of teaching more than during this past fall, so trying to most of those who remained in academic life, and he had been looking forward joyfully to the prospect of resuming his work of research, especially that part of it which was to be carried on in the special laboratory built for him by his friend, Colonel Fabyan, at Geneva, Illinois."

Barrett Specification Roofs



Barrett Specification Roof on Plant No. 3 of The Studebaker Corporation, at Detroit, Mich. Roofers: The Howie Company, Detroit, Mich.
Photo at left: Barrett Specification 20-Year Roof on Acid Plant of Swift & Company, Harvey, La. Roofer: Kracke & Flanders Company, New Orleans, La. General Contractors: Huggar Bros., Montgomery, Ala.



his is
the
Bond
that
guaran-
tee
your
roof for
20
years

Cover Your Investment with a 20-Year Guaranty Bond —

Every one knows that a structure of brick and steel and concrete will endure for a generation and more.

But how about the roof that covers the structure?

Frequently that is not only an unknown quantity but a *liability* rather than an *asset*.

It is a short-sighted and costly policy to put a *poor* roof on a *good* building.

As one of the oldest and largest manufacturers of materials used in constructing roofs, we have done our part to make *all* roofs *good* roofs.

Years ago, for that reason, we induced the leading architects and engineers to unite in the adoption of The Barrett Specification as a satisfactory *standard specification*.

Now we go a step further by sending our Inspectors to check up on the construction, and if they find that The Barrett Specification has been properly complied with, we will, without charge, issue a 20-Year Guaranty Bond *exempting the owner from all further expense for repairs or up-keep on that roof for twenty years*.

This service may be had on all roofs of fifty squares or larger in all towns of 25,000 population or more and in smaller places *where our Inspection Service is available*.

Our guaranty is a real Surety Bond issued by the U. S. Fidelity & Guaranty Company of Baltimore, one of the largest Surety Companies in America. Our only requirement is that the roofing contractor shall be approved by us, and that the Barrett Specification dated May 1, 1916, shall be strictly followed.

Thus, in spite of the fact that we do not build roofs ourselves, we are put in a position where we can guarantee the delivery of the long years of service which these roofs are capable of giving.

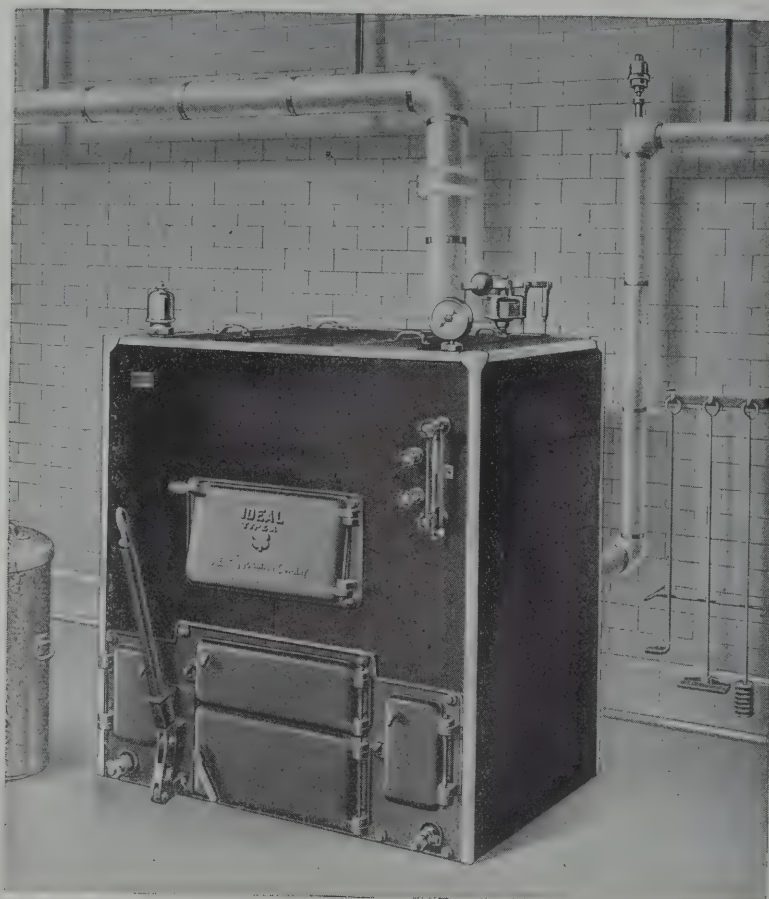
A copy of The Barrett 20-Year Specification, with roofing diagrams, sent free on request.

The Barrett Company

New York Chicago Philadelphia Boston St. Louis Cleveland Cincinnati
Pittsburgh Detroit New Orleans Birmingham Kansas City Minneapolis
Dallas Salt Lake City Nashville Seattle Peoria Atlanta Duluth Milwaukee
Bangor Washington Johnstown Lebanon Youngstown Toledo Columbus
Richmond Latrobe Bethlehem Elizabeth Buffalo Baltimore

THE BARRETT COMPANY, Limited: Montreal Toronto Winnipeg
Vancouver St. John, N. B. Halifax, N. S. Sydney, N. S.

Meet the new standards of Heating with IDEAL TYPE "A" BOILERS



IDEAL TYPE "A" BOILER with Integral Insulated Metallic Jacket for Steam, Vapor, and Hot Water Heating. Particularly adapted for use in Batteries.

Converts the cellar into a cheerful, livable addition to the ideal home. Used for heating cottages, mansions, apartments, hotels, schools, court houses, stores, churches, depots, theaters, banks, hospitals, institutions, and other buildings.

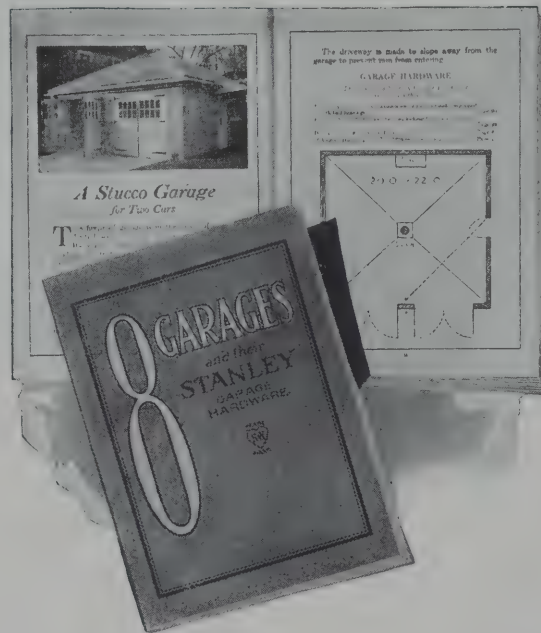
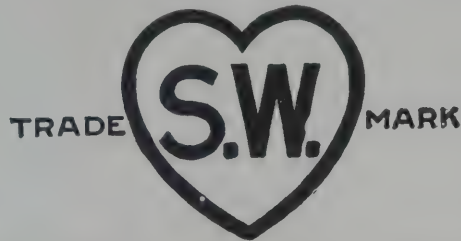
Send today for complete illustrated catalog giving efficiency charts, range of sizes, and remarkable heat control features.

AMERICAN RADIATOR COMPANY

Sales branches and showrooms in all the large cities

THE STANLEY WORKS

*The largest and oldest manufacturers of
Wrought Steel Hardware in the world*



THIS booklet is being sent to prospective garage builders who are requesting it as the result of our advertisements in *The Literary Digest*, *House Beautiful*, *House and Garden*, *Country Life* and several other magazines. In the introduction we say:

"The building and its equipment should be of good quality and it is well to remember that a good architect and contractor are usually an economy."

For the architect who occasionally has a garage to plan this thirty-two page booklet is crammed full of interesting information. A copy of "8 Garages" will be sent to every name on Sweet's 1919 list. If you would like to have yours immediately or if you don't happen to be on this year's list, we will gladly send you one free on request.

THE STANLEY WORKS

NEW BRITAIN, CONN., U. S. A.

NEW YORK: 100 Lafayette Street

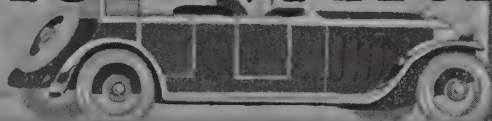
Chicago: 73 East Lake Street

"Use Ball-Bearing Butts for Permanence"

RUSSWIN

RUSSELL & ERWIN

GARAGE HARDWARE



Adaptable Lock No. 200

With Russwin Ball Bearing Cylinder

Self-Adjusting Arm No. 2

Self-Latching Bolt No. 1

Adaptable to any position that the doors may assume; self-adjusting and lock automatically when the doors are closed.

Full information on request.

RUSSELL & ERWIN MFG. CO.,

The American Hardware Corporation Successor
New Britain, - Conn.

NEW YORK

SAN FRANCISCO

CHICAGO

LONDON, ENG.

"BEAUTIFUL BIRCH FOR BEAUTIFUL WOODWORK"



A grain that looks like silk but reminds one more of iron in its resistance to wear and hard knocks; a surface that will beautifully receive and hold whatever stain or enamel you prefer; the strength as well as the beauty necessary for fine furniture; reasonable price—that's "Beautiful **birch**."

*See Sweet's Catalogue Pages
564-565, Booklet, Samples.
We delight to co-operate.*

THE BIRCH MANUFACTURERS

205 F. R. A. Building

Oshkosh, Wisconsin

RELIABILITY

Their reliability, their readiness for action under all circumstances, are chiefly responsible for the success of Von Duprin latches.

To the best of our knowledge no Von Duprin device, anywhere, has ever failed to operate in an emergency.

Therein lies the vital, incontestable reason for specifying



Von Duprin

Self - Releasing Exit Latches

For schools, theatres and other buildings that house large numbers of people



The reliability of Von Duprin devices is the result of endless care in designing, manufacturing and inspecting. Parts that are subject to hard service are made extra heavy, and operate on case-hardened pivots.

The cross bar is double acting; either pressing it down or pulling it up opens the door. The device cannot be blocked either intentionally or accidentally.

Piano-wire springs insure quick, light action, yet the operation is not dependent on the springs. Should the springs become dead through years of inactivity, or even be removed entirely, the device will still operate easily.

Let us send you catalog 12-F, giving complete information
Or see "Sweet's," pages 593-597

VONNEGUT HARDWARE CO.

Indianapolis, Ind.

BOSTON PUBLIC LIBRARY



3 9999 08794 656 0

